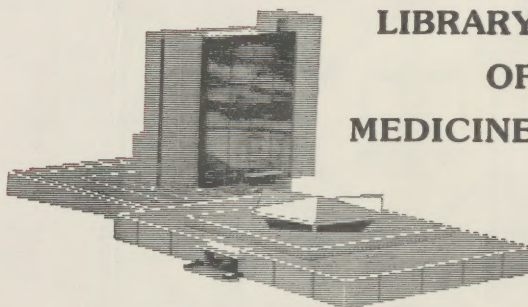




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NAVY MEDICAL CENTER
ORGANIZATION - HISTORY

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U.S. Bureau of Medicine and Surgery

THE NATIONAL NAVAL MEDICAL CENTER

Early History and Establishment

The National Naval Medical Center at Bethesda, Maryland, is

proof of a fine, long-standing history of achievement and progress. The

origin does not spring from the official opening and commissioning of the

U. S. Navy Medical Department

Administrative History 1941-45

Volume II Chapters X.-XII

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CHAPTER X

THE NATIONAL NAVAL MEDICAL CENTER

Early History and Establishment

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The National Naval Medical Center at Bethesda, Maryland, is proud of a fine, long-standing history of achievement and progress. Its origin does not spring from the official opening and commissioning of the organization on 2 February 1942. Actually, it can be said to have had its beginnings in 1812 when the first hospital facilities for naval personnel at Washington, D. C., were established near the Navy Yard. A second unit of the Center, the Naval Medical School, traces its development back to 1822, the year when a post-graduate school in nautical medicine was started. The other units or commands of the Center stem from more recent roots. With the exception of a few years interim period, the Naval Dental School has been in existence since 1923. The Naval Research Institute was projected in blueprint form by Rear Admiral Ross T McIntire in the spring of 1941. The United States Naval Hospital Corps School (WR) was commissioned in 1942; and the United States Naval School of Hospital Administration, which had been functioning under a different designation since July 1943, was established as a separate command of the Center in August 1945.

The National Naval Medical Center represents the prototype or the combination of all the shore facilities and activities of the Medical Department of the Navy, consolidated or amalgamated into one central, unified organization under one general administrative command a hospital, schools (medical, dental and hospital administration), corps

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(medical, dental, hospital and nurses) and a research institute. The special functions of caring for human illness and disability, the professional training and instruction of officers, nurses and enlisted personnel of the Navy, investigation and experimentation for new knowledge, and other related activities are carried out through the central focus of the Center and its commanding officer. Technical instruction goes hand in hand with the "care of the sick and injured" — the task of the clinician and teacher are joined in one complex, integrated unity.

Almost a century and a half of progressive development of medical facilities of the Navy is represented in the development of the National Naval Medical Center. Many years ago the idea for such a center was conceived and projected as part of the Shore Station Development Program. The initial step in the authorization of the Center was the introduction of a bill on 20 January 1930 by Congressman Britten from Georgia.¹ This bill was the forerunner of H.R. 9676, introduced by the same representative on 8 February 1930. Approved, it became a law 25 February 1931. This act authorized the Secretary of the Navy:

...to replace, remodel or extend existing structures and to construct additional buildings.... at the United States Naval Hospital, Washington, D. C. at a cost not to exceed \$3,200,000, of which \$100,000 shall be charged to the Naval hospital fund: Provided, That the construction herein authorized shall be subject to the approval of the Public Building Commission under the authority of section 6 of the Public Buildings Act of May 25, 1926, to the same extent as other public building construction in the District of Columbia.... 2

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1. Daily Congressional Record, 71 Congress, 2nd Session, p. 2006.
 2. United States Statutes at Large, 71 Congress, 1929-1931, vol. 46, Part I, p. 1419.

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Considerable discussion developed on the House floor, and some startling facts were revealed concerning the inadequacies of the old naval hospital. It was shown that more than half of the patients in the naval hospital in Washington were accommodated in buildings erected in 1842 and 1905, together with a few wooden structures of temporary construction—built during World War I. The fire hazard was expounded in caustic language. The inadequacies of the so-called permanent hospital were reiterated, and it was pointed out that the old Observatory building which housed the medical school had been built in 1844 and was woefully inadequate to meet the existing hospital needs. The bill was endorsed by the Judge Advocate General, the Chief of the Bureau of Yards and Docks, the Chief of the Bureau of Navigation and the Chief of the Bureau of Medicine and Surgery.

The Committee on Naval Affairs, to whom H. R. 9676 was referred, strongly recommended the passage of the bill. It was apparent from the evidence presented that in the interest of the proper care and safety of the sick the antiquated, inadequate and unsafe structures of the naval hospital in Washington should be replaced with a modern, fire-proof building. Interestingly enough, these same buildings are at present used as office space by the Bureau of Medicine and Surgery. The increasing local demands of the Veterans' Bureau for more beds was another factor with which the government had to cope. In the report which the Committee submitted accompanying H. R. 9676 it was further stated:

In addition to the hospital proper, it is planned to relocate the present Naval Medical School - with laboratories, classrooms, library and dental department - under the same roof, the combined institutions constituting, in accordance with current practice, a medical center commensurate with

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modern advances, for the diagnosis and treatment of patients and the postgraduate instruction of the personnel of the Navy Medical Department. 3

The Act of 25 February 1931 was amended by an act of Congress, H. R. 6547, which was approved 16 August 1937. It legalized the erection of the new hospital on a new site if it was believed that hospital re-⁴quirements of the future warranted it. This Act was the enabling act. It was an all-important implementation for the Act of 25 February 1931. And, combined with the latter law, the Act of 16 August 1937 was a most significant step in the direction of consolidating the activities of the hospital and the school for closer coordination and greater efficiency in operation. The seed had been planted. Congress had authorized the construction of a new structure which would group all of the special departments of medicine, surgery and dentistry in a clinic or center. The problem of space (since the old hospital site would have provided

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3. Daily Cong. Rec., 71 Cong., 2 Sess., Report No. 741, 24 Feb. 1930.
 4. United States Statutes at Large, 75 Congress, 1 Sess., 1937, vol. 50, p. 663. This Act, H.R. 6547, authorized the Secretary of the Navy to:

construct in the District of Columbia, or in the immediate vicinity thereof, on land already acquired or hereby authorized to be acquired therefor by purchase, gift, or otherwise, buildings to replace the present Naval Hospital and Naval Medical School at Washington, D.C. with the utilities, accessories and appurtenances pertaining thereto, including facilities for the Naval Medical Center and Naval Dental School: Provided, That the advice of the National Capital Park and Planning Commission be requested before the acquisition of property for this purpose and before the construction herein authorized shall begin; if located in the District of Columbia, the construction herein authorized be subject to the approval of the National Park Service under authority of section 6 of the Public Building Act of May 25, 1926 as amended (U.S.C. title 40, sec. 346): Provided further, That the total cost of the land and of the construction hereby authorized shall not exceed \$4,850,000, of which not more than 15 per centum may be expended for the purchase of the site.

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no allowance for expansion even if the difficulties of razing the old buildings had been surmounted) was the factor which probably turned the tide in favor of a new site for the Center. During the term of office of Rear Adm. P. S. Rossiter, a concerted effort was made to secure a Congressional appropriation for land and construction of a new naval hospital. This effort was successfully consummated in a section of the Naval Appropriation Act for the fiscal year of 1939, approved 26 April 1938.⁵ President Franklin Delano Roosevelt had submitted a written concurrence to accompany the Supplemental Estimate of Appropriation for the Navy Department for the fiscal year 1938, "in the amount of \$1,500,000, for the acquisition of land and to commence the construction of a naval hospital thereon in Washington, D. C., or vicinity, instead of replacing, remodeling or constructing the necessary buildings and facilities for such a hospital on the site of the existing naval hospital in Washington."⁶ This appropriation had made it possible to get underway with the work on the selection of a hospital site. Then, the Naval Appropriation Act for the fiscal year of 1939 included the necessary funds for the actual construction of the new medical center.

The question of the selection of a site was a most significant one. The Navy Department recieved offers for about eighty locations or sites in the District of Columbia and adjacent Maryland and Virginia. President Roosevelt, accompanied by Senator Walsh of Massachusetts and

5. United States Statutes at Large, 75 Congress, 3 Sess., vol. 52. p. 236.

6. Daily Cong. Rec., 75 Cong., 1 Sess., Document No. 36-~~1~~ Communication from the President of the United States."

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Representative Carl Vinson of Georgia, who were respectively the chairmen of the Senate and House Naval Affairs Committees, and Rear Admiral Rossiter, visited all the sites available.

Ending a long search during which scores of sites were examined, the final decision ended in the selection of a tract approximately 265 acres composed of groups of farms and estates. The Old Jones Bridge Road skirted the southern border of the tract. In order to build a road which would be outside the Medical Center property, 17 acres were turned over to the National Parks Commission leaving a total of 248 acres which now comprises the National Naval Medical Center tract. This land area is located on the east side of the Rockville Pike (U. S. Route 240) about two miles north of the northwesterly boundary of the District of Columbia. The tract, which consisted of three parcels, was approved personally by President Roosevelt and Rear Adm. P. S. Rossiter, Chief of the Bureau of Medicine and Surgery, following an inspection trip and conferences at the White House on 7 July. The site also had been approved by the

7. Washington Herald, 5 Aug. 1937.

8. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for Hospital for 1943, in files of Administrative History Section. This report records the following farms and estates:

52.153	acres	- - - - -	Alfred Harris Farm
61.166	"	- - - - -	George Hamilton Farm
86.182	"	- - - - -	Paul Henderson Farm
39.488	"	- - - - -	Roger O'Donnell Farm
24.407	"	- - - - -	Donald McPherson Farm
1.417	"	- - - - -	M. Coolidge Place
0.541	"	- - - - -	V. Middleton Place
0.217	"	- - - - -	T. Trigger Place

Copies of contracts ceding parcels of land to "United States of America" by warranty deed awarded to private owners in General Files, Bureau of Medicine and Surgery.

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National Park and Planning Commission, according to the White House
9
statement.

The Bureau of Medicine and Surgery sent a telegraphic message to Capt. A. J. Gore which intimated rather conclusively that President Roosevelt had taken a hand in the selection of the site for the new
10
hospital. Captain Gore had suggested that the Bureau reconsider the east-west highway tract, the Conduit Foxhall tract and Virginia Highlands,
11
which had the advantage of accessibility over all other sites.

In accordance with the Act of 16 August 1937, the site had to meet the approval of the National Park and Planning Commission. The Bethesda site had been approved by this Commission. Adverse reports on the side that the President had previously inspected on Conduit Road near Foxhall Village and in the vicinity of a Dalecarlia Reservoir had been submitted by the Commission on the ground that these sites were not
12
sufficiently large for future expansion. The site selected extended along the east side of the Rockville Pike from the Jones Mill Road to the southern boundary of the country estate of George E. Hamilton. It was located approximately one mile from the village of Bethesda, Maryland, just across Wisconsin Avenue from the new buildings of the Public Health Service, the National Institute of Health and the National Cancer

9. Washington Star, 8 July 1938.

10. Telegram, Western Union, BuMed to Capt. A. J. Gore, 8 July 1938, stated: "Bethesda site determined by President. So far as known there will be no reconsideration."

11. Telegram, Capt. A. J. Gore to BuMed, 8 July 1938.

12. Washington Star, 8 July 1938.

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Preliminary plans for a 650-bed hospital building were then prepared by the Navy Bureau of Yards and Docks in collaboration with Frederick W. Southworth and Paul Cret, the latter a nationally famed architect who had designed a number of public and semi-public buildings in Washington. The plans had to meet the approval of the National Capital Park and Planning Commission and the Commission of Fine Arts.

. The construction of the new Center was initiated in a formal ceremony with the exercises of 29 June 1939, held at the site near Bethesda, Maryland. Rear Admiral Moreell, Chief of the Bureau of Yards and Docks, opened the affair with the statement that it is "the inauguration of what we hope and expect will be the finest establishment in the world for the teaching and practice of military medicine. The project is one of cooperation." ¹³ He went on to tell how the President had taken an active part in the initiation of the Center, and the Secretary of the Navy, Assistant Secretary, and Chief of Naval Operations had all given their personal support and encouragement.

Mr. Charles Edison, the Assistant Secretary of the Navy, extolled "the beautiful rural setting and its special suitability for the Naval Medical Center." Rear Adm. Ross T McIntire, Surgeon General of the Navy, indicated that, "for the first time in planning naval hospitals, we are looking ahead to the needs of years to come." He prophesied that

13. "Naval Medical Center" in "Notes and Comments," United States Naval Medical Bulletin, vol. XXXVII, No. 4 (Oct. 1939), p. 663.

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"the new center would result in great good in the field of military medicine and hygiene, and would also benefit aviation medicine." Rear Adm. Percival S. Rossiter, the former Surgeon General of the Navy, during whose appointment as head of the Bureau of Medicine and Surgery the project had come to fruition, then broke the ground with a bright new spade affirming that the ceremony was "the materialization of a hope in the hearts and minds of the members of the Medical Department of the Navy for a long time."¹⁴

The cornerstone of the Medical Center was laid Monday, 11 November 1940, at 1530 (Armistice Day) by President Franklin Delano Roosevelt in the presence of many illustrious guests. In his address the President recalled the history of the site of the Old Naval Hospital and cited the recognized need for the new center.¹⁵

14. Ibid.

15. The Washington Post (Washington, D.C.), 12 Nov. 1940, quoted from text of President Roosevelt's speech:

This mission today is particularly close to my heart....
.....When this building is completed we shall have a 500-bed hospital incomparably modern in structure and equipment. On these grounds will be provided quarters for the staff officers and nurses and enlisted personnel.

.....In the years to come I am confident that the striking architecture of this great center will receive approval. It is a departure from the colonial type of recent structures.... It combines, I think, a practical usefulness for the facilities which will inhabit it and, at the same time, the harmony of its lines give expression to the thought that art is not dead in our midst.

This Naval Medical Center of which I lay the cornerstone is a tribute to a living democracy - a democracy which intends to keep on living.

The problem of naming the Center was resolved by the Bureau of Medicine and Surgery very diplomatically. A characteristic response by the Surgeon General to a letter requesting that the Medical Center be named in honor of a former distinguished officer in the Medical Corps, Dr. James Markham, a prominent naval surgeon, was indicative of the Bureau's attitude in this matter: "It has never been the policy of the Navy Department to name naval hospitals in honor of any individual, however distinguished he may have been, and no change in this policy is contemplated."

16

At first the Bureau recommended and the then Secretary of the Navy approved the Naval Medical Center's retention of its same name on removal to Bethesda, Maryland. In consultation with the Post Office Department it was found that that recommendation was impractical - that, "if the Naval Medical Center, located at Bethesda, should continue to be designated , 'Naval Medical Center, Washington, D. C. ' an impossible situation would result in the handling of mail, express and freight." Therefore, the Bureau recommended that, "when placed in commission in the near future, the Naval Medical Center be officially designated as: National Naval Medical Center, Bethesda, Maryland."

17
18."

The United States Naval Medical Center was officially placed in commission as the "National Naval Medical Center" at 1100, 5 February

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16. Ltr. BuMed to Mrs. Lycon G. Tyler, (113-29) of 24 July 1940, General Files, Bureau of Medicine and Surgery.
 17. Ltr. BuMed, SecNav, NH6/A1-1(113-29) of 30 Dec. 1941.
 18. Ibid.

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1942 - the move was made from the old location and the several activities were placed in full function as of that date., although the Naval Dental School had already been functioning for some weeks. All except one of the constituent organizations had been commissioned previously in their former location at 23rd and E Streets N. W., Washington, D. C.: the Naval Medical Center, the Naval Hospital, the Naval Medical School, and the Naval Dental School. They were merely continued in their new location at Bethesda, Maryland. The remaining organization, the Naval Medical Research Insittute, was commissioned in its new location on Navy Day, 27 October 1942.

Several portions of the Center were still under construction or alteration at the time of its occupancy in February. However, this did not impede functioning of its activities. The installation of equipment and technical apparatus continued throughout the year particularly as a result of the steady increase in the wartime demand for services of the various constituent branches of the Center. The following buildings had been completed at the time that the Center was officially opened: Building 1 (the administrative building, the medical and dental schools and tower); east wing building 1 (operating suite, admission section, record office, post office and pay office); building 2 (auditorium, commissary, ship's service, and Red Cross departments; buildings 4 and 6 (comprising six wards and their offices and genito-urinary and eye, ear, nose and throat clinics); five sets of officers' quarters, (Quarters A, B-1, B-2, B-3, and B-4); permanent quarters for hospital corpsmen (housing approximately 276 men); nurses' quarters (housing approximately 72 nurses);

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laundry and garage building; materiel building and power house.

On the one hundredth anniversary of the establishment of the Bureau of Medicine and Surgery, 31 August 1942, this National Naval Medical Center was dedicated at 1430 by the President of the United States, Franklin Delano Roosevelt.

20

The two cornerstones at the entrance of the Center contain interesting information and read as follows:

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19. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for Hospital, for 1943, in files of Administrative History Section, BuMed.
 20. The Washington Post (Washington, D.C.), 1 Sept. 1942, quoted from text of President Roosevelt's speech:

In this hospital which we dedicate in this green, peaceful Maryland countryside, our Navy battles against disease and disability and death.

Those who fight this vital battle here are anonymous heroes of this war - the officers, men and women of the Bureau of Medicine and Surgery which today celebrates its 100th birthday..... On land and sea and in the air, they have carried on their unending fight 'to keep as many men at as many guns as many days as possible.'

Three years ago tomorrow morning on September 1, 1939, Hitler's legions launched their first blitzkrieg against the people of Poland. In these three years men have died, and nations have been tortured and enslaved, to satisfy the brutal lust for power of a few inhuman tyrants - German, Italian and Japanese.

To the defeat of such tyrants - to the removal from this earth of the injustices and inequalities which create such tyrants and breed new wars - this nation is wholly dedicated.

Let this hospital then stand, for all men to see through-out and to fight until the time comes when the human race shall have that true health in body and mind and spirit which can be realized only in a climate of equity and faith.

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U. S. Naval Medical Center
Washington, D. C.
MCMXL

Rear Admiral Ross T McIntire, (MC), USN
Surgeon General, U. S. Navy
Rear Admiral Ben Moreell, (SEC), USN
Chief of the Bureau of Yards and Docks
Frederick W. Southworth, AIA
Architect
John McShain, Builder

U. S. Naval Medical Center
Washington, D. C.
MCMXL
Franklin Delano Roosevelt
President
The Honorable Charles Edison
Secretary of the Navy
Paul P. Cret, FAIA
Consulting Architect 21

Rear Adm. Charles M. Oman, (MC), USN, the first commanding officer of the center, has given us an excellent description of the central building of four stories, with its tower rising to a height over two hundred and fifty feet, in a special article on the center written for the U. S. Naval Medical Bulletin.²² All the buildings, except the

21. Cornerstones

22. Charles M. Oman, "The National Naval Medical Center," U. S. Naval Medical Bulletin, vol. XL, No. 2(Apr. 1942), pp. 254-255.

.....At a distance, the dark spandrels, vertically situated between the windows, serve to give the main building the appearance of having lofty square columns. The style is monumental, and its balanced beauty gives to the observer a sense of quietness and repose. Various colored terra cotta tile is extensively used in the interior corridor and rooms, with a most harmonious effect. The lobby is lined with Vermont marble, of three colors, and trimmed with white bronze. The operating suite is on the second floor, and the main operating room, which is lined with pink Tennessee marble, has two glass-enclosed viewing galleries.....

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officers' quarters, have been constructed of structural steel, faced with precast-exposed aggregate concrete panels.

Space was provided in the central or Administration building for the medical school, the dental school, and about 270 hospital beds. The Medical Center consists of a central group of buildings, which includes administration offices, laboratories, classrooms, a surgical pavilion, two-ward buildings, ship's service, commissary and recreational facilities, including an auditorium with a seating capacity of 600. The Naval Dental School occupies two floors of the main north wing, while the Naval Medical School occupies two floors of the main south wing. The research unit occupies a separate building which was not completed until the summer of 1942. The hospital corpsmen's quarters, the nurses' quarters and five sets of officers' quarters are separated from the main Medical Center.

One section of the seventeenth floor and the entire eighteenth floor in the central building are occupied by lounges and a solarium for patients's use. The main hospital section is situated in wings which are extended to the north and south of the main building; each ward is provided with sunrooms.

The tower of the Administration building, which is set on a bluff facing the Rockville Pike, dominates the landscape for many miles in all directions. It rises to a height of 558 feet above sea level, and 270 feet above the Rockville Pike, and will be devoted to wards and individual sickrooms... The tower floors are in the shape of a Geneva cross, the greatest length being approximately 106 feet.

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United States Naval Hospital

In 1811 Congress provided for the establishment of naval hospitals. The construction and operation costs of these hospitals were to be paid for from the Naval Hospital Fund which was originated by an allocation of the Navy's share of the Marine Hospital Fund (\$50,000) and was maintained by an assessment of twenty-five cents per month from every man in the Navy and Marine Corps, and by fines and other similar means. No permanent hospitals were purchased or erected during this period and during the War of 1812 the Hospital Fund was diverted into other channels.

Naval hospitals during this period occupied, on a temporary basis, buildings near or in the principal Navy yards. They were not, from a clinical point of view, superior to the civilian controlled hospitals previously used. The first hospital facility for naval personnel in Washington, D. C., was established near the Navy Yard in a building rented for that purpose about 1812. According to the accounts, it was an old farmhouse with few conveniences, and evidently the one to which Surgeon Thomas Ewell, writing in 1812, "offered to give one year's pay to help its condition." The equipment of this hospital in 1815 was meager. ²³ This hospital was succeeded by one established at the Navy Yard. It was discontinued in 1843, when it proved to be inadequate with the beginning of the Civil War and a temporary naval hospital was established in the hospital provided by the government for

23. W. L. Mann, Medical Tactics, vol. II, p. 98.

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the insane; the wards assigned to the Navy were used until 1866.²⁴

Congress appropriated \$115,000 for the construction of a new building which was commissioned 1 October 1866. This brick building, still standing, is located on Pennsylvania Avenue between 9th and 10th Streets, S. E. The hospital was designed for 50 beds. Today, it is used as a home for ex-soldiers, sailors and Marines.

The next well-known Washington naval hospital, completed and placed in commission in October 1906, was located at 23rd and E Streets, N. W., during the regime of Surgeon General Presley M. Rixey. For several years following its commissioning, this naval hospital was known as the Naval Medical School Hospital, and for some time both this hospital and the naval hospital at Pennsylvania Avenue and 10th Street, S. E., were in commission. The latter hospital was discontinued in 1911, and the hospital at 23rd and E Streets became the U. S. Naval Hospital, Washington, D. C.

On 28 June 1935, the Naval Medical Center, Washington, D. C., consisting of two subordinate administrative units, the U. S. Naval Hospital and the U. S. Naval Medical School, was established by General
25
Order No. 70. The Naval Dental School was formed as a distinct unit on 1 April 1936, and attached to the Naval Medical Center by authority of the Secretary of the Navy.

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24. John Harper, Captain, (MC), USN, "United States Naval Hospital," United States Naval Medical Bulletin, vol. XL, No. 2 (Apr. 1942) p.256.
25. Navy Dept. General Orders, No. 70. Amplification of this general order follows in latter part of paper.

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The "old" U. S. Naval Hospital, Washington, D. C., was closed on 5 February 1942, and was reopened the same day at Bethesda, Maryland, (as previously indicated) as a unit of the National Naval Medical Center. This new hospital is a general hospital for the care, treatment and hospitalization of Navy, Marine Corps and Coast Guard personnel. Wards have been set aside for the treatment and study of tropical diseases and the staff has worked in conjunction with the Naval Medical School and the Naval Research Institute.

During 1942 the following buildings were brought to completion in connection with the hospital: shop and utility buildings, 2 hospital corpsmen barracks known as Annex Number 1 and Number 2 (of temporary wooden construction and housing approximately 250 men each) and 10 additional wards of temporary wooden construction. ²⁶

The hospital buildings are organized in a relatively compact arrangement. The central unit of the group is main building number 1, whose twenty-story axial tower is flanked by a four-story north and south wing and a three-story east wing. The recreation and subsistence building, designated as number 2, adjoins the east wing of the main building. There are two three-story ward buildings designated by the numbers 4 and 6, directly south of building number 2, which is connected thereto by north-south corridors. Also, on the north side in the same relative position there are two three-story wards designated by numbers 3 and 5. These were not completed until the early part of

26. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for Hospital for 1943, in files of Administrative History Section.

1943. There are five temporary one-story wards of wood construction which are parallel to buildings numbers 4 and 6 and which adjoin the east end of the east-west passageway of these buildings by a corridor. They are designated by numbers 101 and 105. A similar group of temporary wards, designated by numbers 106 through 110, are joined to the east-west corridor of buildings numbered 3 and 5.

It is interesting and significant to note that the hospital administration introduced an excellent arrangement to improve the patients' welfare and add to their recreational enjoyment. A broadcasting system was set up whereby three separate radio programs could be sent out to the patients' rooms simultaneously or one program sent out over all three channels. Two complete radio receivers were set up in room 205 in building number 2, complete with necessary amplifiers and phonograph table with microphone attachment, and the necessary amplifiers were built into a cabinet with essential control switches for three channels—A, B, and C. Also, microphone connections which make possible the broadcast of any of the auditorium activities to the patients' rooms were set up in the auditorium. Each ward has adequate earphone connections for the patients' use.

27

The medical department of the hospital occupies eight of the floors in the tower structure and five temporary wards. The equipment for diagnostic and therapeutic purposes, like most of the equipment in the hospital, is new and the best that can be procured. It is adequate

27. National Naval Medical Center, Annual Sanitary Report of U. S. Naval Hospital for Calendar Year, 1942.

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in amount and design and should stand up over a period of some years without replacement. In the diagnostic field the Hospital is fortunate to be in the same building with the medical school where all the latest laboratory procedures are available.

28

The work of the neuropsychiatric division of the medical department continued to grow steadily after the opening of the hospital in February 1942, and continued to increase proportionately with the increase in the size of the Navy. Patients admitted to that service came from various naval activities on the Atlantic seaboard, as well as from the Great Lakes and Pensacola. In addition to duties performed at Bethesda, a Navy office is maintained at St. Elizabeth's Hospital where cases which are transferred are followed until the final discharge from the service, transfer to Fleet Naval Reserve, or retirement. The neuropsychiatric division has also conducted three separate training programs on a postgraduate level for specially selected medical officers with a definite aptitude in the field. In March 1942, a course of technical instruction in psychiatric nursing for hospital corpsmen was instituted.

29

The amount of surgery performed in 1942 showed a considerable increase over that of previous years. The operating facilities at the hospital, according to the best sources, are excellent. The operating suite on the second floor is well arranged and adequate for a patient census of 1500. The equipment is of the highest quality and all the permanent fixtures, such as cabinets, are made of stainless steel.

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28. Ibid.

29. Ibid.

30. Ibid.

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The X-ray, physical medicine, eye, ear, nose and throat and urological departments similarly have excellent facilities and equipment which are adequate and of the best quality for their separate operative functions.

In April 1943, the Naval Medical Research Institute comprising three buildings, was completed. Also, in June of this same year the WAVES' barracks, with a capacity of 240 WAVES, was ready for occupancy. The Hospital Corps School for members of the Women's Reserve with barracks to house approximately 500 was started in August 1943, but not completed until the following year. During this year, also, the following buildings were completed and occupied: an addition to the nurses' quarters, garage shop buildings and buildings 3 and 5. The latter were duplicates of buildings 4 and 6, comprising eight wards, offices and special examination and treatment rooms. The construction of these buildings was started in February 1942, but not completed until the following February 1943.³¹

During the years of 1942 and 1943 considerable landscaping had been done to beautify the hospital grounds. Approximately 1,250 trees, including oaks, elms, sycamores and a few magnolias, were planted. A number of these trees and shrubs came from the old hospital reservation, the White House and the National Parks. An old spring and springhouse in front of the main building were converted into a beautiful pergola and pond.

31. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for 1943, in files of Administrative History Section, p. 3.

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The most important change in the facilities occupied by the medical department during 1943 was the completion and occupancy of buildings numbered 3 and 5, since the medical department occupied six of the eight wards in these two buildings. During 1943 a great increase in the number of WAVES stationed in Washington necessitated increasing the number of beds allocated to WAVES.

The Tropical Disease Service was established 6 September 1943, to coordinate research and clinical experience more closely in the field of tropical medicine.³² The active management of the tropical disease ward is under the direction of the chief of medical service of the hospital, but many of the research problems are instituted and outlined by an Advisory Committee for Tropical Disease appointed by the medical officer in command of the Medical Center.. During the four months of its functioning, the Committee has instituted and carried out several research problems on malaria and filariasis.

The all-important consultation service of the medical department was enlarged during 1943. Members of the surgical and other staffs were available at certain specified hours for consultation in their specialties. The facilities of this service were available to patients referred to the service by various naval dispensaries in Washington and vicinity, by the Surgeon General, and by the attending physician to Congress.

According to the sanitary report for 1943, the continued steady

32. Ibid., p. 25.

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increase of patient load resulted in overcrowding in many wards of the hospital and filling to capacity of all other wards. The hospital was originally planned and equipped on a basis of eight-foot bunk space from center to center. This had to be cut to six feet and even less in most instances. For example, the report cites that Ward 107, a temporary ward designed for 34 beds, now had 70.³³

The department of neuropsychiatry continued to expand and the volume of work greatly increased during this year. The number of patients admitted more than doubled the total for the previous year. The training programs of this department were most important. About 1 June 1943, a training course was started in neuropsychiatric clerical procedures for WAVES to acquaint them with clerical procedures and the paper work required in this specialty. Then they were to be assigned to other hospitals. On 1 September 1943, a course of indoctrination in psychology for WAVE officers was started. This course consisted of indoctrination in Navy methods as well as instruction in psychometric examinations and their application to neuropsychiatric patients.³⁴ About 5 November 1943, space was provided in the neuropsychiatric department for Red Cross psychiatric, recreational and occupational therapy workers and they were given access to the wards. This was the initial step in a definite program for rehabilitation of this type of patient.

The Department of Physical Medicine, which had formerly been

33. Ibid., p. 28.

34. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for Calendar Year, 1943, p. 6.

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under the X-ray department, became a separate department unto itself during 1943, embracing electrotherapy, hydrotherapy, fever therapy, and occupational therapy.

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The administration showed its interest in the Blood Donor's Campaign through its direction of blood donor's campaigns in the hospital itself. Campaign volunteers were obtained who donated their blood when the American Red Cross Mobile Blood Donor's Unit came to the Center. The activity expanded and soon required cooperation from convalescent patients, Red Cross ladies, et cetera.

On 12 July 1943, an organized school for Hospital Corps officers was started. The course, of six months' duration, included instruction in property and accounting, commissary, hospital personnel and record office management, maintenance duties and miscellaneous subjects.

Early in the following year, 1944, a 500-bed expansion program was authorized. This obviously necessitated the construction of additional wards and accessory buildings. The following buildings were completed and occupied during this year: building 123 (additional quarters for Hospital Corps WAVES); building 125 (addition to nurses' quarters); buildings 126-137 inclusive, all of which were temporary ward buildings; a storage garage; and a fire house. This same year, on 12 January, a Hospital Corps School (Women's Reserve) was commissioned and occupied. The dependents unit was also opened in January. This service was limited to the treatment of acute surgical and medical cases of

35. Ibid., p. 7.

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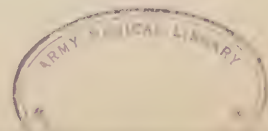
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female adult dependents only. Contagious and neuropsychiatric cases were definitely excluded.

In compliance with Bureau orders, 24 April 1944, a rehabilitation program was inaugurated. A rehabilitation board was appointed at Bethesda to develop, place into operation and direct a program of re-
36
habilitation for hospital patients. The scope of the program was sufficiently wide to include all activities and services which were required to supplement the usual therapeutic procedures necessary to achieve maximum adjustment of the individual patient for further military service or for return to civil life with the least possible disability. The chief of the Department of Physical Medicine acted as the rehabilitation officer. The activities which were conducted under this program fall into these groups: physical training, educational service, physical therapy, occupational therapy, Red Cross, and pre-discharge interviews.

The physical training personnel were charged with the responsibility of maintaining an optimum state of general physical fitness of patients. Their part in the program got under way about November 1944. They were directed to include physical exercise as part of the daily routine of all hospital patients but the amount of exercise performed was to be confined to that which the responsible ward medical officer deemed appropriate. Bed exercises formed a most important part of the program. However, these exercises for bed patients were closely

36. National Naval Medical Center, Annual Sanitary Report for 1944, in files of Administrative History Section.



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supervised by the physical training personnel. The complement of this personnel was set up on an approximate basis of one officer to each 1,000 patients.

The educational service was established at Bethesda on 4 January 1944, prior to the inauguration of the rehabilitation program, now an integral part of that program. It started with a staff of one officer and expanded during 1944 to 5 naval officers, 1 Marine officer, and 4 enlisted personnel. During that year it enrolled 632 people in high school and college courses; maintained twelve classes in varying subjects for 272 patients; directed individual instruction to 336 patients and interviewed 6,295 patients concerning education and naval and civilian problems in terms of each man's postwar plans. These specific accomplishments do not preclude the many other fine services of this excellent program. The other activities of the rehabilitation program are performing as thorough and excellent a service to the Center as the two services which have just been elaborated.

37

In July of 1944 the hospital staff WAVES' barracks number 2 was completed and occupied, and in this same month building 125, the Nurses' Quarters Annex, was similarly completed and occupied.

On 1 August 1944, the hospital at Bethesda demonstrated its ability to cope with an emergency influx of patients. The first ambulance trainload of battle casualties was received at the hospital on that day. These 129 battle casualties had been injured in the occupation

37. National Naval Medical Center, Annual Sanitary Report for 1944, in files of Administrative History Section.

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of the Normandy beachhead. They were chiefly orthopedic and neuro-surgical cases. The entire group was unloaded at the Baltimore and Ohio Railroad Station and admitted to the wards at Bethesda in the record time of approximately fifty-seven minutes.

38

Also, it was during this year that two women medical officers reported for duty on the staff of the hospital. Lt. F. L. Willoughby, (MC), (W), USNR, was assigned to the neuropsychiatric service and Lt. (jg) E. M. Gregory, (MC), (W), USNR, a qualified surgeon, was assigned to the surgical service.

During 1944 there was a steady increase in the number of neurosurgical, plastic, surgical, thoracic surgical and orthopedic cases. Drafts of patients with tropical diseases were received from the West Coast monthly for special study, treatment and research investigation. Clinical practice during the year continued to demonstrate the remarkable curative powers of penicillin and sulfa drugs. Penicillin, the most important of the new and improved technics or drugs, has proved its inestimable value in the treatment of many critically ill patients. In internal medicine, its use has been effective in meningococcus meningitis, pneumococci, streptococcal and staphylococcal pneumonia, Vincent's infections and shows promise in the treatment of chronic cholecystitis. The surgical department treated many infections including postoperative wound infections, carbuncle, cellulitis, and

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38. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for 1944, in the files of Administrative History Section.

39. Ibid.

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osteomyelitis with excellent results.

Penicillin has been almost invaluable in the treatment of sulfa fast gonorrheal infections as well as ear infections. The treatment of syphilis has practically been revolutionized by the use of penicillin. It is particularly effective in cases of syphilis affecting the central nervous system.

Other drugs which were introduced in 1944 or were brought into more extensive use during this year included tyrothricin used in urologic service and sodium amytal in the neuropsychiatric department. Intravenous injections of the latter enabled the elimination of certain emotional conflicts and symptoms by "bringing them into full consciousness and resynthesizing them with the personality of the patient". Its use also enabled one to differentiate between hysterical conditions of feigned illness. The introduction of electro-shock therapy technique in the neuropsychiatric service for the first time in 1944 brought striking results in rehabilitating many more patients than formerly had been possible. The use of Demerol for sedative purposes in therapeutic fever proved safer, smoother and easier to administer.

In the X-ray department the use of Periodex for gall bladder visualization produces fewer shadows and has proved less distressing to patients; radon ointment has had a beneficial effect on various refractory skin conditions; and preliminary studies of vitamin B₆ indicated considerable benefit in preventing or alleviating radiation sickness.

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40. National Naval Medical Center, Historical Supplement to Annual Sanitary Report for 1944, in files of Administrative History Section.

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The annual sanitary report for 1944 strongly recommended action and development of an athletic field and tennis courts to carry out the physical training program for physical exercise of graded intensity for patients "to reduce deterioration in physical fitness which accompanies confinement to bed" - thereby reducing the number of sick days. This project was first submitted with and for Public Works Estimate for fiscal year of 1946 and later submitted as a project for immediate construction on the instruction from the Bureau of Medicine and Surgery. The project was processed by the Bureau of Yards and Docks. In line with this program, during the first part of 1945 plans were underway to build a five-wing recreation building east of Rock Creek with a gymnasium and swimming pool. The pool was to be large enough to hold 150,000 gallons of water which will be steam-heated, filtered and changed every eight hours. General offices, barber shops, tailor shop, etc., would be located in the basement. ⁴¹

The year of 1945 saw a continuation, and, in some cases, expansion of the departments which have been discussed for the previous years of the Bethesda hospital development. Experiments on malaria and other diseases were continued by the Tropical Disease Service. In the first half of 1945 all the neuropsychiatric wards were terribly overcrowded, so much so that it was impossible to segregate patients properly. In fact, the quarterly sanitary report completed 30 June 1945, indicated that overcrowding had seriously injured the work of the rehabilitation program as a result of the fact that the patients

41. National Naval Medical Center, Quarterly Sanitary Report for U. S. Naval Hospital, Bethesda, 31 Mar. 1945.

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could not be properly classified and segregated. The report stated that "this service acts as a preliminary screening place for those being sent to St. Elizabeth's." Many officers were subsisting out because of lack of beds when they were in no condition to do so. However, by September of this year, there was a drop in the admission rate in the neuropsychiatric department which decidedly helped to relieve overcrowding. By September the Hospital was confronted with the "chaotic conditions resulting from demobilizing personnel." Corpsmen had to be used to cover the high rate of absenteeism among civilian personnel.

In this year of 1945 the occupational therapy building was completed and occupied.

The figures given by the sanitary reports of the respective years of the Bethesda hospital history present a very clear picture of the growth in the bed expansion of the hospital.

The increase in the actual number of beds in 1944 over that of 1943 was due to the construction of the temporary ward buildings authorized in the 500-bed expansion program. This was a repercussion of the crowding in many wards and the filling to capacity of all other wards during 1943. Similarly, the increase in the actual bed capacity of 1943 over that of 1942 followed as a consequence of the completion of buildings 3 and 5, constituting eight wards. The increased bed expansion in the hospital program in the years 1942 through 1944 is one of the best indices of the continued growth and development of the

42. Ibid., 30 June 1945. .

43

Naval Hospital at Bethesda.

The Bureau of Medicine and Surgery, under the direction of the Secretary of the Navy, is charged with the direction and responsibility for the upkeep and operation of the hospital at Bethesda,

43. National Naval Medical Center, Annual Sanitary Reports for U. S. Naval Hospital, Bethesda, for 1942, 1943 and 1944.

PRESENT BED EXPANSION

1942: 110 Beds, Sick Officers' Quarters
12 Neuropsychiatric Officers' Quarters
122
886 28 wards with 886 beds on 8' centers
1008 Present total bed capacity

ACTUAL EMERGENCY BED EXPANSION

No figures were computed for 1942 for emergency bed expansion on 6' centers. This statement, however, was included: "Survey of all spaces that could be used to house patients in emergency showed maximum of.....3,256."

ASSEMBLED	8'Ctr. Nml. Cap.	6'Ctr. Nml. Cap.	Wards	Quiet Rooms, Sol., Aisles	EMERGENCY TOTAL
1943:					
Sgl. 1,115	Ward Room 781	Ward Room 1,101	Sgl. 971	Quiet Room 335	Wards 1,203
Dbl. <u>232</u>	Quiet Room <u>228</u>	Quiet Room <u>339</u>	Dbl. <u>232</u>	Sol. 105	Quiet Room, Sol., Aisles <u>679</u>
Actual				Aisles <u>239</u>	
Total 1,347	Total 1,009	Total 1,440	Total 1,203	Total 679	Total 1,882
1944:					
Sgl. 1,685	Ward Room 1,110	Ward Room 1,575	Sgl. 1,250	Quiet Room 429	Wards 1,910
Dbl. <u>584</u>	Quiet Room <u>288</u>	Quiet Room <u>415</u>	Dbl. <u>660</u>	Sol. 120	Quiet Room, Sol., Aisles <u>857</u>
Actual				Aisles <u>308</u>	
Total 2,269	Total 1,398	Total 1,990	Total 1,910	Total 857	Total 2,767

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also with the repairs to public works and utilities of this hospital and within the capacity of the forces employed according to the provisions laid down in the rules and regulations for governing the United States Navy.⁴⁴

The Navy Regulations further states that "naval hospitals shall be commanded by naval medical officers."⁴⁵ The following officers have commanded the Naval Hospital, National Naval Medical Center:

Capt. Robert E. Hoyt, (MC), USN,
5 February 1942 to 14 August 1942.
Capt. John Harper, (MC), USN,
15 August 1942 to 12 April 1945.

Capt. R. F. Duncan, (MC), USN, is the present commanding officer of this hospital, having assumed command 12 April of this year.

The U. S. Naval Hospital at Bethesda is a self-contained, separate command unit under the general administrative command of the medical officer in command of the National Naval Medical Center, according to the Manual of the Medical Department.⁴⁶ The commanding officer of the hospital is charged with the command and direction of the hospital for the purpose of effecting its mission.⁴⁷ Subject to the orders of

44. U. S. Navy Regulations, No. 457 (2) and 484 (3).

45. Ibid., No. 170.

46. Manual of the Medical Department of the U. S. Navy, Rev. Copy, No. 16A5.

47. Manual of the Medical Department of the U.S. Navy, Rev. Copy, No. 16A2 states this mission: (1) the care of the sick and injured naval personnel with the object of their restoration to duty (2) the disposition of those patients who require special treatment not satisfactorily available, or who are unfitted for retention in the naval service (3) treatment of other persons when authorized by competent authority (4) cooperation with military and civil authorities in all sanitary matter.

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higher authority the commanding officer of the naval hospital of Bethesda exercises complete jurisdiction within the hospital reservation, but his duties include more than those of a military administrator as he is charged with the professional care of patients in the hospital.

The organization of the United States Naval Hospital, National Naval Medical Center, which is illustrated in the accompanying organization chart, conforms with the established form of naval hospital organization and administration as set forth in the Manual of the Medical Department.⁴⁸ There are a few slight variations - the fact that provision was made at Bethesda for the Red Cross Gray Ladies to be placed under the supervision of the administrative division, and the fact that the rehabilitation service (which was not included in the organization chart in the Manual of the Medical Department in effect during the war years and now placed under the authority of the assistant to the executive officer) in the Bethesda organization falls under the supervision of both the administrative and clinical divisions. These are two illustrations of modifications of the Bethesda plan from the type-set organization provided in the manual. But provision has been made for such modification. Since "naval hospitals vary greatly in size, personnel and facilities, an inflexible plan of organization is impracticable.....this organization shall be modified only when necessary to meet the needs of hospitals where personnel and facilities demand deviation."⁴⁹

48. Manual of the Medical Department of the U.S.Navy, Rev. Copy, No. 16A5.1, A5.2.

49. Manual of the Medical Department of the U.S.Navy, Rev. Copy, No. 16A5.1.

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AUTHORITY: 5.1.1.1
DECLASSIFICATION: 5.1.1.1

The Naval Hospital at Bethesda has its own rules and regulations governing the internal administration of the hospital in accordance with the provisions of the Manual of the Medical Department. This year, under Capt. R. E. Duncan's regime, a revised set of rules and regulations was compiled. Hospital Order Number 1 made provision for these regulations for the guidance of the staff and patients. ⁵⁰

National Naval Medical School

The medical school at the Center is "but the present expression of some of our efforts for the training of our medical personnel." The instruction for medical officers at the school is fundamentally postgraduate work. Its mission has been well stated as that of training of medical officers of the Navy for service afloat and ashore. ⁵¹ In light of the fact that the naval medical officer is in a military service, he has to perform a large variety of duties, both medical and military. The Medical Department has long recognized the significance of special training of medical officers of the Navy and has vigorously promoted its advancement and development. Some agency was essential to solve many of the problems which would never come within the scope of civil practice, as those which are created as an effect of maritime

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50. Rules and Regulations for United States Naval Hospital, National Naval Medical Center, No. 1.
"1. In addition to the instructions contained in the U.S. Naval Regulations and the Manual of the Medical Department relating to Naval Hospitals, the following hospital rules and regulations governing the internal administration of this hospital will be observed by the personnel attached thereto."
51. W. O. Bunker, Captain, (MC), USN, "United States Naval Medical School, Bethesda, Md."; United States Naval Medical Bulletin, vol. XL, No. 2 (Apr. 1942), p. 261.

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and warm climates where peculiar disease problems have to be resisted and conquered, if possible. In addition, the naval medical officer has to receive training and indoctrination in the duties of a military organization.

Hence, the medical officers under instruction at the Naval Medical School are already graduates in medicine. As soon as possible after entry into the service, an effort is made to bring these officers to the school and provide them with the necessary training "before they are turned loose in the field." "Refresher" courses for officers who have spent a number of years in the service are given in the school to keep them in line with the new advances in medicine - "to recover the ground lost while out of touch with the growth and advancement of the medical profession." Since 1917 instruction has also been provided in the Medical School for enlisted men as well as for medical officers. They are given training as technicians in various fields. Navy nurses have also completed training as technicians at this school.

Instruction of this nature had long been provided in other countries before our own was organized. In this country the Naval Medical School history becomes a chronicle of successive steps in a progressive development. Surgeon W. P. C. Barton, who later became the first chief of the Bureau of Medicine and Surgery, recommended some sort of training school for naval medical officers (who met the qualifications for appointment) as early as 1809.

52

52. Harry G. Danilson, Lt. Comdr. (HC), USN, "U. S. Naval Medical School," The Military Surgeon, vol. 80, No. 1, Jan. 1937, p. 53.

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AUTHORITY: BUREAU OF NAVAL MEDICINE

A postgraduate school in nautical medicine for naval officers was started in 1822. Thomas Harris, then a member of the examining board in Philadelphia, organized a small course of instruction for newly commissioned assistant surgeons. He continued this course for a number of years, urging the Secretary of the Navy nearly every year for a little money to purchase books, instruments, or other aids. Finally, because of insufficient funds and the transfer of Dr. Harris to other duty, the idea and the school both ended.

53

The Naval Laboratory, established in 1853 primarily to test and insure the purity of drugs used by the Navy, became a place of instruction for newly appointed medical officers. This instruction was disestablished during the Civil War and its work was not renewed. Surgeon General William Grier instituted formal instruction at the Naval Hospital, Brooklyn, New York. It constituted a two-year course with lectures in military surgery and naval hygiene.

54

Surgeon General James Rufus Tryon, one of the Navy's greatest surgeon generals, is particularly honored as the real father of the Naval Medical School. The Museum of Naval Hygiene had been founded in Washington in 1883, and ten years later, Surgeon General J. R. Tryon issued the order creating the U. S. Naval Laboratory and Department of

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53. Louis H. Roddis, Captain, (MC), USN, A Short History of Nautical Medicine, pp. 232-233.
54. Harry G. Danilson, Lt. Comdr. (HC), USN, "U. S. Naval Medical School", op. cit.
55. Louis H. Roddis, Captain, (MC), USN, op. cit., p. 232.

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Instruction at Brooklyn, New York. The course of instruction covered
57
a period of three months.

Surgeon General Tryon obtained the Naval Observatory on the old site, the hill near Braddock's Rock, just west of the Lincoln Memorial as a place for the school. (The buildings of this observatory had been completed in 1845). The Library of the Surgeon General was also moved into this Observatory building and became the nucleus of the present library of the Naval Medical School. This School continued in operation until the demand for medical officers at the outbreak of the Spanish-American War brought about its discontinuance. All those then under instruction were ordered away. The department of instruction was never revived.

In 1902, Surgeon General P. M. Rixey drew attention anew to this subject, and during his term of office this old building became the Naval Medical School with a formal title and faculty. It was opened for instruction on 3 November of that year.

The actual precursor of the present Naval Medical Center was the U. S. Naval Museum of Hygiene. The Bureau of Medicine and Surgery

56. Harry G. Danilson, Lt. Comdr. (HC), USN, "U. S. Naval Medical School," op. cit., p. 53. The order reads in part: "Assistant Surgeons shall, immediately after admission to the Navy, be ordered to the Naval Laboratory and Department of Instruction, for such duty and instruction, under prescribed rules and regulations, as may be necessary to familiarize them with the duties of Medical officers afloat and on shore."

57. The instruction course covered the following subjects: chemistry, hygiene and sanitary science, microscopy and microbiology, military and operative surgery, clinical medicine and operative work, construction and ventilation of modern warships, examination of recruits and life-saving methods, Navy regulations, Navy ration, etc.

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had organized and equipped a small laboratory known as the Washington Laboratory for investigating naval hygiene matters. A Museum of Hygiene had previously been advocated. In 1882 the Bureau rented a building at 1744 "G" Street, N. W., for the combined purpose of Museum of Hygiene, laboratory and dispensary. In 1887 it was transferred to 1707 New York Avenue, N. W.; in 1902, to the old Observatory; and finally, in 1942, to the Bethesda site.

Surgeon General P. M. Rixey had strongly recommended the re-establishment of the Naval Medical School in his annual report for the year of 1902. The repercussive effect of his interest and advocacy was the Navy Department's order of 1902 which established the United States Museum of Hygiene and Medical School - a consolidation of the School
58
and the Museum.

Medical Director R. A. Marnion, USN, assigned in command of the new unit, thus became the first commanding officer of the present Naval Medical School. This important institution is the "only considerable school of maritime medicine in the Americas and the principal repository of books, pamphlets and other material relating to nautical

58. Harry G. Danilson, Lt. Comdr. (HC), USN, "U. S. Naval Medical School," op. cit., p. 55. Quoted Navy Department Order of 1902: "The U. S. Naval Laboratory and Department of Instruction at New York, shall hereafter be designated as the U. S. Naval Laboratory. The U. S. Naval Museum of Hygiene, at Washington, shall be hereafter known as the U. S. Naval Museum of Hygiene and Medical School. Assistant Surgeons, as soon as practicable after admission to the Navy, shall be ordered to the U. S. Naval Museum of Hygiene and Medical School for such duty and instruction, under rules and regulations prescribed by the Surgeon General of the Navy, as may be necessary to familiarize them with the duties of medical officers afloat and ashore."

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medicine in the New World."

Immediately following its establishment, the function of the Museum became subordinate to that of the School, and later the more valuable exhibits such as microscopes and appliances were transferred to the national museum, and the Museum of Hygiene was then discontinued. By 1906, the new naval hospital on the school grounds, completed in that year, furnished clinical material for the School; a permanent facility had been formed; laboratories had been equipped and new classes added.

The importance of laboratory service in modern medicine necessitates the establishment of facilities for training enlisted personnel as technicians. During World War I the instruction work of the School increased and it became the base for very useful epidemiological and sanitary units. The same thing happened in World War II. Increased activity during World War I resulted in additions to the east and west wings. The first experimental and research work in connection with submarines was started at this same time. The length and composition of the courses of instruction for medical officers have varied from time to time depending upon the exigencies of the service - some as long as nine months, others as short as three weeks.

According to the Navy Department General Order Number 70 of 20 June 1935, "The Naval Medical Center, Washington, D. C., is hereby established and shall consist of the Naval Medical School and Naval Hospital, Washington, D. C. The Naval Medical Center shall function

59. Louis H. Roddis, Captain (MC), USN, History of Nautical Medicine, p. 234.

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as a medical diagnostic and educational center, under the control of
60
the Bureau of Medicine and Surgery."

Certainly, in the remarkable progress and development of the Naval Medical School the heritage and achievements of this postgraduate school have left their imprint as a "medical diagnostic and educational center" of naval medicine. The School was moved to its new quarters at the National Naval Medical Center at Bethesda, Maryland, 5 February 1942. It is splendidly housed at the new center and occupies two floors of the main south wing as well as many rooms in the basement. Specifically, in the main building the School occupies part of the south wing on the first floor, one-half of the south wing on the second floor and all of the third floor.

The functions of the School have expanded and multiplied to keep abreast of medical progress and service demands. This was particularly true during World War II. Its principal activities include: regular instruction courses, consultation and physical examinations, research and investigation, testing materials and proving methods, production of reagents and biologicals, liaison with government and civilian institutions, diagnostic and medico-legal service with examining boards, maintenance of a reference library, printing, photography and reproduction. 61 After the establishment of the WAVES, the Medical School opened its classes in various specialties of timely importance incident to the .

60. Navy Department, General Orders, No. 70.

61. Ltr. Chief, BuMed, A2-9/ND(054), 29 July 1941.

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war and to its geographical theaters of operation to both male and
62
female personnel, officers and enlisted.

The interest in the subject of tropical medicine was stimulated by the experiences of the Army and Navy in tropical areas during the Spanish-American War, and in the tropical possessions of Spain which were acquired by the United States at the close of the war. The Naval Medical School became the most important center of postgraduate training in tropical medicine in the United States. The work done on the control of tropical disease in our possessions constitutes one of the brightest spots in the history of the United States and of American medicine. This Department of Tropical Medicine and Parasitology has become one of the outstanding divisions of the Naval Medical School. One of its exceptional collections was the insectarium, designed for the breeding and housing of insects. The Department has prepared a very fine manual of tropical exotic diseases for the guidance of the Medical Department
63
of the Navy. The Department of Tropical Medicine and Parasitology in the Medical School includes the following activities: routine laboratory work in malaria and intestinal parasites, class instruction in malariology and entomology and the maintenance and procuring of teaching

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62. C. W. O. Bunker, Captain, (MC), USN, "United States Naval Medical School," United States Naval Medical Bulletin, vol. XL, No. 2, Apr. 1942, pp. 265-266. These specialties include: epidemiology and tropical medicine, malariology, laboratory procedures, pathology, roentgenology and photofluorography, the making of acrylic plastics, and the several aspects of art and photography which are grouped together under the heading of audio-visual aid.
63. Annual Report, Chief BuMed, Fiscal Year, 1942.

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The Epidemiology Department was established early in 1941 with concomitant changes in the curriculum as well as in the formation of the classes. With the marked extension of naval warfare into the tropics, the time given to tropical medicine parasitology and entomology has been increased from two to five weeks. The duration of the course is eighteen weeks. Until February 1944, the classes were made up of both officers and enlisted men; at that time, classes of student of-
64
ficers were alternated with classes of enlisted men. Two laboratories, Enteric Pathogen and Streptococcus Typing, were established within this department but the work of both expanded to such proportions that it was decided to consider them as independent departments for a more easy-flowing administration. Each of these units is now a separate department.

Epidemiology Unit 100 is the designation given to an epidemiology unit which can be made up from the staff of the officers and enlisted technicians of the Naval Medical School for the investigation of any epidemic. Complete laboratory equipment for such work is in storage, ready for shipment when needed.

The Bacteriology Department of the School has done considerable work in penicillin studies together with the clinicians of the Hospital. The Physiological Chemistry Department has had considerable additional

64. National Naval Medical Center, Annual Report for Fiscal Year, 1944 for Naval Medical School, p. 6.

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work occasioned by the several research projects consisting mainly of blood level concentrations of anti-malarials which have been conducted in the hospital wards. The General Chemistry Department is divided into two sections - manufacture and analysis. In the Biologics Departments both presumptive and standard Kahn antigen are made for distribution on request to all naval medical activities.⁶⁵ Other departments of the Medical School which carry on important laboratory and instruction work include the Hematology, Serology and Blood Plasma Departments - the latter of which has accomplished some important developments in clinical research during the years from 1942 to 1945.

The Naval Medical School publishes laboratory manuals, which are produced by the officers in various departments, together with manuals published by members of the hospital staff. These have been distributed to naval activities requesting them, and a number of copies have been sent to Army and Public Health Service units as well as to medical schools and civilian hospitals.⁶⁶

The Medical Illustration Department has taken within the scope of its activities a number of diversified undertakings: the securing of illustrations for the X-ray, dental, entomology, electrocardiography, bacteriology, and hematology manuals; the procurement of teaching charts for hematology, malariology and bacteriology; the arrangement of material for exhibits; the making of medical and surgical

65. Ibid.

66. National Naval Medical Center, Annual Report for Fiscal Year for 1944 for Naval Medical School, p. 17.

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drawings and posters for the Bureau of Medicine and Surgery's V. D. program and various center activities. The departments of Medical Illustration and Photography have been combined under the one head of the Audio-Visual Aid Department. In fact, in the present year of 1945 it has been the intention of the Chief BuMed "to make Audio-Visual Education of primary importance in our entire training scheme in the coming year." 67

The National Naval Medical Center Library, consisting of over 2500 medical books, journals, pamphlets, etc., comes within the range of the Naval Medical School administration. The crew's library at the Center has been assigned to the command of the Naval Medical Library in order to facilitate the servicing of the library by all the librarians of the Center. Hence, the medical library and the crew's library are both under the administrative command of the Naval Medical School.

On 13 April 1944, a full-time professional librarian reported for duty as hospital librarian to relieve the medical librarian of the responsibility of the crew's library. The staff of the crew's library is now doing all classifying, cataloging, typing, filing, selection and requisitioning of books. In line with other medical libraries, the Naval Medical School library is now collecting duplicate copies of a selected list of medical journals. These duplicates are to be sent to the Library of Congress where a pool has been started from which overseas libraries will be able to fill in their destroyed or broken files for use in the postwar period.

67. Ltr. BuMed A3-1/E, 11 Apr. 1945.

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The Naval Medical School is one of the command units of the National Naval Medical Center, administratively speaking, with its own separate command organization but under the administrative authority of the commanding officer of the Center. The commanding officers of the School form an illustrious roster of naval medical officers. Since its establishment at Bethesda, the following officers have been in command of the School:

- (1) Capt. Charles W. O. Bunker, (MC), USN,
5 February 1942 to 1 September 1942.
- (2) Capt. Paul White Wilson, (MC), USN,
1 September 1942 to 11 December 1944.
- (3) Capt. Herbert Lamont Pugh, (MC), USN,
11 December 1944 to _____.

The contributions of the Naval Medical School in this way, particularly to naval hygiene and sanitation, clinical laboratory methods and procedures, aviation and submarine medicine and tropical medicine, have received wide recognition. The men who are trained in the malariology school of the Naval Medical School provide the nucleus for "hard-hitting malaria control outfits scattered throughout the world." Through the work of the epidemiology school there has been a marked reduction in all communicable disease with consequent lowering of the number of men and man-days lost due to illness. The General Chemistry Department of the Naval Medical School "contributed notably to medical chemistry during the war, and is a valuable and essential laboratory in the peacetime Navy." The Naval Medical School is proud of the "pioneer role" it has played in the audio-visual aid field with a promising future in medical photography. The Bacteriology Laboratory

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in the war against disease has done a splendid job in helping to "bring about the aim of hastening diagnosis, and allowing the weapons of medical science to deal a swift blow to the invading enemy."⁶⁸

Naval Dental School

The Naval Dental School has been in existence since 1923, the year when the dental division was established under the command of a dental officer. Surgeon General Stitt's vigorous educational program included the establishment of a dental department of the Naval Medical School. It was placed in operation on 3 February 1923. The object was to create a school wherein postgraduate instruction could be provided for officers of the Dental Corps and where instruction could be given to specially detailed hospital corpsmen who are trained to serve as dental technicians. This department was officially designated at this time as the Naval Dental School.⁶⁹ In its establishment this division was given cognizance of all dental affairs in the Navy. It was also given authoritative command of the administration, under the direction of the Surgeon General, of all technical activities pertaining to the Dental Corps, including personnel, material, and inspection.⁷⁰

68. National Naval Medical Center 'News', vol. 1.

No. 27, 7 July 1945
No. 29, 21 July 1945
No. 31, 4 Aug. 1945
No. 33, 18 Aug. 1945
No. 35, 1 Sept. 1945

No. 37, 15 Sept. 1945
No. 39, 29 Sept. 1945
No. 43, 27 Oct. 1945
No. 45, 10 Nov. 1945
No. 47, 24 Nov. 1945
No. 49, 8 Dec. 1945

69. Annual Report of the Chief of the Bureau of Medicine and Surgery for Fiscal Year, 1923, p. 22.

70. Ibid.

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A class of 5 dental officers was graduated on 16 June 1923 and 10 hospital corpsmen completed the four months' course provided for them on 3 June of that year in the first graduating class in the history of the school. At that time there were three dental officers attached to the faculty who performed the duties of instructors in the various phases of dentistry. The usual number of students at this time was 4 or 5 dental officers at a time who were given two courses of four months each in dental medicine, commencing in February and September. The hospital corpsmen received instruction as general and laboratory technicians to equip them as assistants to dental officers.

The very first year of its establishment arrangements were made to extend the scope of dental activities in the Navy to include certain prosthetic procedures, such as crown and bridge work and the manufacture of dentures. This work was first undertaken in the dental laboratory at the Naval Dental School where statistics were compiled to determine the probable cost of making this class of dental work available throughout the Navy. However, it was proved that the cost of this work to the Government is small, and the increased efficiency of the naval personnel produced by these dental procedures justified the expenditure. 71

The new dental school had a threefold function. In addition to the instruction offered, the institution provided a working laboratory for the construction of special prosthetic appliances which were being gradually introduced as a part of the dental service furnished

71. Annual Report of the Chief of the Bureau of Medicine and Surgery for Fiscal Year, 1923, pp. 22-23.

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by the Navy. The third function of the School was to supply dental service to the U. S. Naval Hospital, Washington, D. C. The threefold function of the Navy Dental School operated in such a way that the Navy was not deprived of the services of such dental officers and hospital corpsmen as were detailed to the school for instruction purposes.

The Surgeon General indicated in the annual report for 1925 that the success which attended the administration of the affairs of the Dental Corps during the past two years more than justified the establishment of the dental division.⁷² The division was still regarded as rather a revolutionary idea. Many difficulties had to be overcome in the earliest years after its establishment, but despite the impediments that lay in its path, the Surgeon General reports that the post-graduate instruction was generally of a high standard. Each year through 1929 this instruction was provided to two classes, each consisting of five student dental officers at the Naval Dental School. The class of hospital corpsmen being trained as dental technicians at the School had increased to 20 men. The instruction provided at times was necessarily curtailed because of the need for the services of instructors and student officers in the treatment of the large number of personnel receiving dental service at the clinic conducted in connection with the School.⁷³

During the depression years when Congressional appropriation

72. Annual Report of the Chief of the Bureau of Medicine and Surgery for Fiscal Year, 1925, pp. 29-30.

73. Annual Reports of the Chief of the Bureau of Medicine and Surgery for Fiscal Years, 1926, 1927, 1928, 1929.

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for naval activities was curtailed to the lowest ebb, the Naval Dental School was discontinued for a period of about three to four years. ⁷⁴

Many of the more perplexing problems were overcome with the establishment of the equalization bill and the increase in rank. It is important to note, however, that in the early years of the School's history when there were so many obstacles in the path of its progress, the equipment and method of instruction were of the highest standards and in accord with the most advanced modern theories of the day. This School was the envy of many dental schools throughout the country.

According to the General Order No. 70 of 30 June 1935, the Naval Medical Center was established to consist of the Naval Medical School and U. S. Naval Hospital, Washington, D. C. This did not include the Naval Dental School. ⁷⁵ On 17 March 1936, the Naval Dental School was established as a distinct unit and attached to the Naval Medical Center by authority of the Secretary of the Navy. It was located at 23rd and E Streets, N. W., Washington, D. C.

The Naval Dental School moved to new quarters at the National Naval Medical Center, Bethesda, Maryland, on 29 December 1941, several weeks before the Naval Medical Center was officially commissioned, ⁷⁶ 5 February 1942. The Naval Dental School thus became officially one

74. A. H. Yando, Capt., (DC), USN, "United States Naval Dental School," United States Medical Bulletin, vol. XL, No. 2, Apr. 1942.

75. Navy Department General Orders, No. 70.

76. Annual Report of the Chief of the Bureau of Medicine and Surgery for Fiscal Year, 1942.

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of the subordinate commands of the National Naval Medical Center with a captain, (DC), USN, as commanding officer of the Dental School.

The organization of the Naval Dental School as it existed in December 1941 is illustrated in Enclosure I. It was revised in organization pattern to the extent of that shown in Enclosure II.

During the period of the war the Naval Dental School has performed the dual role of teacher and clinic. All dental officers attached to the staff were required to treat patients as well as instruct in the various courses of the instruction program of this School. The military and indoctrination course at the Naval Dental School was formulated with the intent of including instruction in subjects that would be of the greatest possible value to the dental officers in the battle zones.
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The principal subjects emphasized in the instruction course during the fiscal year of 1943 included general anesthesia, venipunctures, blood plasma studies, hematology, maxillofacial surgery, surgical first aid, Red Cross first aid, chemical warfare and a field trip to Quantico, Virginia - all given under qualified supervision. Thirty officers completed this course during 1943, and 15 were graduated

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77. A. H. Yando, Capt., (DC), USN, "United States Naval Dental School" in United States Medical Bulletin, vol. XL, No. 2, April 1942, pp. 267-277. A brief organization outline of the curriculum and administration of the Naval Dental School has been summarized in composite outline form in Appendix A. This outline is based on the curriculum information contained in Captain Yando's article.



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on 12 August 1944.

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Two very significant educational films were completed at the
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Naval Dental School during that same year. And, in the slide collec-
tion of teaching material the Naval Dental School mounted and catalogued
kodachrome slides in oral surgery, radiodontia, oral pathology, operating
dentistry, oral histopathology and peridontia. The following year a
civilian company finished another film title "The Process of Human
Dental Caries" for the Naval Dental School. This Dental School also
has its own library with very valuable enrichment material.

During the fiscal year 1943-1944 a new department known as
the Maxillofacial Prosthesis Department was established in the School
80
to meet anticipated future needs.

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78. National Naval Medical Center, Annual Dental Report of the Naval
Dental School for 1 July 1943 to 1 July 1944.
During period from 1 July 1943 to 1 July 1944, 14 officers completed
postgraduate instruction in prosthetic dentistry and 100 members of
the Women's Reserve completed instruction as dental technologists,,
general. In addition, 19 enlisted men and 3 enlisted women com-
pleted a six months' instruction course in prosthetic laboratory
procedures and were qualified as dental technologists, prosthetic.
79. SN2978 "Clasp Partial Denture Design" - An 800-foot sound slide (20
minutes) which gives the principles of designing various types of
clasp partial dentures.
MN2607 "Duties of a Dental Technician" - An 800-foot indoctrination
film for dental technicians. This film was started in July 1943,
but was not distributed until the end of the year.
80. National Naval Medical Center, Annual Dental Report of the Naval
Dental School for 1 July 1944.

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The Naval Dental School has the only naval prosthetic dental laboratory within this area. The School has the finest and best quality equipment for performing this prosthetic dental treatment. The main prosthetic laboratory, approximately 20 by 36 feet in size, has five center type benches providing laboratory bench spaces, each space of which is a complete unit with instrument drawers, bench engine, stainless metal top and fluorescent light. The department also contains a casting room, filled with a streamlined L-shaped bench into which wells are sunk for containing two centrifugal-type casting machines and an oven. In addition to the equipment in the prosthodontia department, there is a small prosthetic laboratory for crown and bridge work with a streamlined U-shaped bench which has been built around through the walls of the room.⁸¹ All of the built-in equipment of the School is of the finest quality available for rendering efficient modern dental services.

The Naval Dental School is under the direct administrative supervision of the commanding officer of the Naval Medical Center which, in turn, is subject to the authority of the Chief of the Bureau of Medicine and Surgery. The following dental officers have been in command of the School since the establishment of the Naval Medical Center at Bethesda:

Capt. A. H. Yando, (DC), USN-
5 February 1942 to 14 March 1944

Capt. Rae D. Pitton, (DC), USN-
14 March 1944 to 7 October 1945.

Capt. Clemens V. Rault, (DC), USN-
26 November 1945 to _____.

81. A. H. Yando, "United States Naval Dental School," United States Naval Medical Bulletin, vol. XL, No. 2, pp. 274-276.

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The executive officer is charged with the responsibility of carrying out the administrative decisions of the commanding officer. He also acts in the capacity of first lieutenant and in these capacities he is the supervisor of the student body and materiel.

Naval Medical Research Institute

For many years the establishment of a medical research unit for the naval service had been recognized as being of utmost importance by many medical officers, particularly by those who staffed the Naval Medical School throughout its years of service. With limited facilities a few of these officers had engaged in research with a view to solving some of the problems which they had encountered during their tour of sea duty. Others had worked on problems which had been brought forward for consideration by the Bureau of Medicine and Surgery from time to time. Despite the heavy demands made on their time by their instruction duties, a limited amount of medical research along different lines had been carried out through the years by these interested medical officers. This research had culminated in the yielding of a number of contributions of definite value toward the solution of certain problems in aviation, ventilation, deep sea diving, prevention of venereal disease, and others. Inadequate funds and lack of facilities have sadly curtailed this work both in the extent of the studies undertaken and the scope of the problems which should be investigated.

In the annual report of the Chief of the Bureau for 1939 plans were under discussion to provide a research laboratory to train additional personnel for continuous investigation of naval medical problems.

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Research activity was regarded as of greatest importance as a naval specialty. During that year the rescue and salvage work on the USS SQUALUS afforded a crucial test of laboratory knowledge and results of experimental diving which had previously been conducted in the laboratory of the Experimental Diving Unit in the Navy Yard, Washington, D. C. Also, during this year lectures and practical demonstrations on the subject of aviation medicine were conducted in accordance with a regular schedule.

During May 1940, ventilation tests were carried out aboard the USS SIMS and the USS QUINCY to study the effect of tropical cruising on naval personnel. And, during this year, research projects were carried out in the laboratory of the Experimental Diving Unit, Navy Yard, Washington, which dealt with the measurement of skin temperature, decompression of divers after long exposures in compressed air and tests of oxygen inhalation apparatus.

In 1941 a laboratory unit was established under the direction of Lt. Comdr. L. R. Newhouser, (MC), USN, at the Naval Medical Center. This unit collaborated with the Army and the National Research Council in establishing standards for the processing of plasma, as well as standards for plasma equipment. New equipment was installed to conduct the processing of citrated plasma. Cooperating with the Red Cross a procedure

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82. Bureau of Medicine and Surgery, Annual Report of the Chief of the Bureau of Medicine and Surgery for Fiscal Year ending 30 June 1939.
83. Bureau of Medicine and Surgery, Annual Report of the Chief of the Bureau of Medicine and Surgery for Fiscal Year, 1940.

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was established whereby citrated plasma was furnished to all of the continental naval hospitals.

After the plans for the new Naval Medical Center had proceeded beyond the anchoring ground, there seemed to be an opportunity to include research as one of its function. It seems quite natural that these first ideas should have taken the form of research laboratories for the staff of the Naval Medical School rather than a separate research unit. Under the leadership of Rear Adm. H. W. Smith, medical officer in command of the old Naval Medical Center, and Rear Adm. W. Chambers, the medical officer in command of the Medical School, plans for an actual research unit were outlined in the early stages of planning the new Center.

At the request of the medical officer in command of the Naval Medical School, Comdr. A. R. Behnke, (MC), USN, suggested in a memorandum dated 7 December 1939 that a research unit be established separate from the School. Commander Behnke recommended the establishment of a medical research unit with laboratories for research in the field of applied physiology relative to naval preventive medicine, aviation medicine, and atmospheric hygiene. He had in mind a small unit, the equipment for which would cost \$15,000.00, but he expressed the hope that the results of the research of such a unit would soon justify an increase in staff.

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84. National Naval Medical Center, Historical Data of the Activities of the Naval Medical Research Institute for 1943.
85. Memorandum General Files, BuMed NC43/All(121), 7 Dec. 1939. ("Research Laboratory for the New Naval Medical School.").

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facilities and personnel. Commander Behnke had tirelessly devoted himself to research on naval problems with outstanding results in several fields, particularly in the advancement of methods for safety in deep sea diving. In a previous memorandum he had stated, "I have looked forward to the time when the Bureau of Medicine and Surgery would include a division of research in its organization."

Admiral Smith forwarded Commander Behnke's memorandum approved and commented, "the present situation makes research in certain lines an immediate obligation furnishing facilities for the prosecution of research such as that outlined in the attached memorandum is a matter of urgent importance." 87 Rear Adm. Ross T McIntire referred these memoranda to the Chief of the Bureau of Aeronautics. The Chief of the Bureau of Aeronautics at that time, Rear Adm. John H Towers, on 29 December 1939 stated, the establishment of a research laboratory under the administration of the Medical Department of the Navy would be welcomed by this Bureau. He indicated, "the Bureau of Aeronautics is constantly faced with the problem of safety and comfort of personnel. In many cases it has to rely upon principles and conclusions which have been arrived at by studies conducted in related interests but which lack specific direct application to the problem at hand." 88

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86. Memorandum General Files, BuMed NC43/A11(121), 7 Dec. 1939, p. 2 (Memo for Captain Chambers).
87. Memorandum General Files, BuMed NC43/A11(121), 11 Dec. 1939, 1st Endorsement N46/A6-5(6).
88. Memorandum General Files, BuMed NC43/A11(121), 29 Dec. 1939, 3rd Endorsement, NC43, NH6.

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In a memorandum to the Surgeon General of 9 July 1941, advocating such a research laboratory, Capt. C. L. Andrus stated: "The Research Laboratory which is to be provided as a part of the new Naval Medical Center will, for the first time, make available to the Medical Corps of the Navy adequate facilities for comprehensive research related to military and especially naval problems. Apart from the Research Laboratory, provisions for research in the Hospital and School
89
of the Medical Center are negligible."

Surgeon General, Rear Adm. Ross T McIntire, approved a plan for a separate research building at the new National Naval Medical Center. He reiterated over and over again the urgency of this project as the war in Europe moved forward. His far-reaching views of the situation conclusively determined that the Institute when established should serve as a centralized center functioning along broad lines, a clearing house
90
of research for the entire naval medical service.

Plans for the new buildings for research were developed under the direction of Rear Adm. Dallas G. Sutton, then the commanding officer of the Naval Medical School. While the Institute was under the process of construction, a skeleton organization was developed by Rear Adm. H. W. Smith who was in charge of the Research Division of the Bureau of Medicine and Surgery. Capt. W. L. Mann, (MC), USN, (now Rear Admiral) was selected as the Medical Officer in command. He reported for duty

89. Memorandum to Surgeon General, General Files BuMed, from :
CG. L. Andrus to Chief BuMed, 9 July 1941.

90. Quoted from Preliminary Report of U. S. Naval Research Institute,
N.N.M.C. Bethesda, 27 Oct. 1942.

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29 September 1942. Dr. A. C. Ivy, professor in physiology, Northwestern University, was appointed to the civilian scientist post of Chief Scientific Director on the basis of military leave.

Ground for the main building of the Institute was broken on 2 February 1942, and in October of that year the research laboratories were available and the Research Institute was officially commissioned. When Dr. A. C. Ivy reported for duty on 15 October 1942, there were only three other members on the staff, a "small but effective nucleus," working in four rooms of the naval hospital. Dr. Ivy and this small group developed an organization, formulated policies and supervised the installation of equipment.

The Naval Medical Research Institute was commissioned on Navy Day, 27 October 1942, under the command of Capt. William L. Mann, (MC), USN, with Capt. R. H. Draeger, (MC), USN, as Executive Officer and Prof. A. C. Ivy as Director of Research. The ceremony was attended by a distinguished audience including the Surgeon General, Ross T McIntire, who spoke on the aims of naval medical research and the important role that the Institute was expected to fulfill in solving naval medical problems, many of which had been created out of the war. In his preliminary report concerning the Research Institute, submitted on its commissioning date, Captain Mann asserted: "The Institute has been commissioned as one of the components of the National Naval Medical Center and functions in close cooperation with other components - under the direct command of the medical officer in command of the Center, Rear Admiral C. W. O. Bunker, (MC), USN...One of its functions is to

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visualize and attempt to solve in advance, problems before emergencies arise." 91.

The staff increased from the original 13 which constituted the scientific staff during the months following the commissioning of the Institute. At the close of 1943 the Institute had a staff of 55 commissioned officers, 15 of whom were in the United States Women's Naval Reserve, 2 civilian scientists, 80 enlisted men and 17 enlisted women. 92 On 31 August 1945, there was a total of 80 officers; 38 were H(S) and 19 H(W) officers.

Through the intelligent planning and the careful selection and organization of an effective staff by Admiral Mann and Dr. Ivy, research of immediate practical value to the war effort was made possible. In July of 1943 Dr. Ivy resigned as Chief Scientific Director to resume his work at Northwestern University but shortly after, he did find it possible to accept an appointment as consultant when called upon by the medical officer in command. In the same month of July Admiral Mann was relieved by Capt. E. G. Hakansson, (MC), USN. The position of Director of Research was then assigned to Captain Behnke as Research Executive. No further changes in administrative position were made during the war.

At the time of its origin, Admiral Mann had divided the

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91. Preliminary Report of the U. S. Naval Research Institute, N.N.M.C., Bethesda, 27 Oct. 1942.
92. National Naval Medical Center, Historical Data of the U. S. Naval Research Institute for Year 1943, p. 12.

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Institute into four departments for research under the Director of Research: environmental medicine, naval preventive medicine, equipment research and dental research. In July 1943, the research facilities of the Institute were reorganized. Instead of the four departments mentioned above, "facilities" were established for various specialties.

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Each faculty head is responsible to the executive officer "for the organization of his facility, the effectiveness of his personnel, and for the inventory, care and up-keep of equipment." The different departments of the Institute, in turn, subdivided into sections, function as an integrated unit in carrying out their research activity.

According to the best authoritative accounts, the organization of the Institute into facilities available to all investigators under the coordination of the research executive has been very satisfactory. Very few research projects do not require an integrated effort of several facilities. Sooner or later most investigations call

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93. National Naval Medical Center, Historical Account of the Activities of the Naval Medical Research Institute during World War II, 17 Dec. 1945. These specialties included:

animal laboratories, aviation, bacteriology, biochemistry, biophysics, chemistry and gas analysis, dentistry (experimental), diving and under water physiology heating, air condition and ventilation, industrial hygiene, library, nutrition, parasitology, pathology, personal equipment design, pharmacology and toxicology, physiology, psychology and statistics, psychometric rooms and metabolism, hematology, technical shops, experimental surgery, virology.

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upon the use of several facilities and necessitates the collaboration of scientists in various specialties.

The internal organization of the Research Institute was carefully evolved in the war years with an unmistakable concomitant effect on the type of research work which was undertaken. Fundamental research activity was carried on in field activities of vast importance to the military services in time of war - such as high altitude flying, submarine operations and ventilation under war-time conditions, and other similar activities. As previously inferred, each department has access to each and every laboratory.

The research projects are given a simple classification in the general schedule of arrangements and automatically align themselves in these four basic categories: (1) relating to the Navy as a whole or to the combatant branches (2) afloat (3) afield (4) aviation.⁹⁴ Each research project is initiated either by the staff of the Institute or by the Bureau of Medicine and Surgery after the formulation of the research into project form. A principal investigator is in charge of each project and holds full responsibility to the research executive for the progress and all reports relative to his investigation. The principal investigator has access to all necessary assistance from other facilities "through the coordinative authority of the research executive."

The authority of the two executives, the executive officer and the research executive, meets in various research facilities but does

94. Preliminary Report of the U. S. Naval Research Institute, N.W.N.C., Bethesda, 27 Oct. 1942.

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not overlap. The duties of the executive officer are in general the same as in any other naval unit. In this case his duties affect the assignment of personnel, space, equipment and maintenance. The research executive, who is in immediate charge of the research, is essentially concerned with the coordination of the research to be done in the various facilities by the investigators who are assigned to carry out the research projects. 95 The early organization of the Institute is shown in Chart I, Enclosure I. The changed organization in Chart II, Enclosure II shows the organization of the Research Institute which became effective July 1943, in the establishment of "facilities" and the definition of the duties and responsibilities of the executive officer and the research executive.

A brief resume of the research undertaken by the Institute is of historical interest since the investigations assigned and carried out reflect to some extent the medical problems of the Navy afloat and ashore. 96

The Naval Medical Research Institute, like the other separate commands of the Naval Medical Center, functions through the commanding

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95. National Naval Medical Center, Historical Account of the Activities of the Naval Medical Research Institute for the period of World War II, 17 Dec. 1945.
96. National Naval Medical Center, Historical Account of the Activities of the Naval Medical Research Institute for the period of World War II, 17 Dec. 1945.
An abbreviated statement, condensed from this review, concerning some of the more important research undertaken at the Institute has been included in Appendix B.

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officer of the Institute who is subject to the authority of the general administrative command of the medical officer in command of the National Naval Medical Center. The Institute deals with the Bureau of Medicine and Surgery and the commandant, Potomac River Naval Command, through the medical officer in command of the Naval Medical Center. The Bureau of Medicine and Surgery has cognizance over the projects and problems which are investigated, studied and developed by the "facilities" of the Research Institute.

U. S. Naval Hospital Corps School (WR)

The WAVES (Women Accepted for Volunteer Emergency Service) were authorized by Act of Congress, July 1942, as an addition to the United States Navy. A conference was held with Comdr. Mildred H. McAfee (now Captain) on 12 September 1942, at which it was resolved that the Bureau of Medicine and Surgery would provide a statement of standard qualification for enlisted women for assignment to the Hospital Corps. Also, it was determined that the Bureau of Medicine and Surgery would supply the recommended number of such enlisted women to be sent to the training school in Iowa for indoctrination. This suggestion was made
97
by BuMed on 19 September.

Applicants were to submit satisfactory evidence that they were professionally qualified to perform the duties of Hospital Corps technicians in one of the following subjects: clinical laboratory technician, dental technician, X-ray technician, physiotherapy technician,

97. General Files, Bureau of Medicine and Surgery H-D, A18-1/EN(122), 19 Sept. 1942.

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occupational therapy technician.

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It was estimated by the Bureau that 400 V-10 technicians meeting the requirements could be used in the Medical Department to replace hospital corpsmen as follows: clinical laboratory technicians 130; dental technicians, general - 140; dental technicians, prosthetic - 40; X-ray technicians - 60; physiotherapy technicians - 20; occupational therapy technicians - 10. Also, it was further recommended that procurement quotas of V-10 technicians for further assignment in the Hospital Corps be enlisted and indoctrinated in Iowa in groups of 100 and distributed among the indicated specialties.

The Bureau of Medicine and Surgery also recommended in this same letter to the Bureau of Naval Personnel that the V-10 technicians, after completion of indoctrination, be rated hospital apprentices, second class, divided into two groups of approximately 50 each, one group to be transferred to the U. S. Naval Hospital at San Diego, California, the other, to the National Naval Medical Center, Bethesda, Maryland, for a further period of about four weeks for orientation in the duties of their rating. After completion of this training at the naval hospitals indicated, it was proposed to recommend to the Bureau of Naval Personnel the rating of the V-10's not above pharmacist's mate, second class, and to distribute them to activities to replace regular Hospital Corps technicians. It was further recommended that officer WAVES be assigned to the Naval Medical Center and San Diego hospitals at the same time that
98
the V-10's were assigned.

By January 1943, approximately 5,500 WAVES were enlisted in the Hospital Corps. They were sent directly into the large naval hospitals for their indoctrination and training. The need for more formal basic training for the rapidly increasing number of women in the Hospital Corps soon became apparent and this need brought forth the decision to establish a WAVES Hospital Corps School at the National Naval Medical Center. Six months later, 1 July 1943, the first officer was ordered to report to the National Naval Medical Center for duties in connection with the establishment of a school for Hospital Corps WAVES - Chief Pharmacist Clarence W. Ferguson, USN, who has since been promoted to lieutenant⁹⁹ and at present is the executive officer of the School.

In August 1943, Skinker and Garrett, the contracting company, started surveying and plotting the ground at the School site. This same month, 26 August 1943, ground at the School was broken and construction of the buildings was advanced. Two months later, 24 October 1943, Comdr. Warren G. Wieand, (MC), USN, who had previously been at the Bureau of Medicine and Surgery, reported to assume the duties of executive officer of the new School.

The School was declared in commission at National Naval Medical Center, Bethesda, by Rear Admiral Bunker who was the commanding officer of the National Naval Medical Center at that time. The commissioning exercises were attended by a most eminent assembled group including Vice Admiral McIntire, Surgeon General; Comdr. (now Captain) M. H. McAfee,

99. National Naval Medical Center, Historical Supplement to Fourth Quarterly Sanitary Report for Period of World War II of the U. S. Naval Hospital Corps School (WR), 20 Dec. 1945.

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director of the Women's Reserve, and Capt. John Harper, (MC), USN, commanding officer of the Naval Hospital. This was the first special Hospital Corps School for enlisted members of the Women's Reserve.

At 1830 on the commissioning day, 12 January 1944, the first group of students, 230 WAVE hospital apprentices, arrived at the school from Hunter College, New York City. Classes were assembled the following morning and the first class was graduated 7 February 1944. The graduation class was addressed by Commander Braceland, (MC), USNR, from the Bureau of Medicine and Surgery, in the auditorium of the Administration Building.

The basic professional training at this Hospital Corps School constituted a four weeks' course in anatomy and physiology, first aid and minor surgery, hygiene and sanitation, nursing, metrology, materia medica and pharmacology and, in addition, three weeks' active ward duty. At the end of this four weeks' instruction period they had completed 137 hours
100
of classroom work and supervised study.

Through the first quarter of 1945 a quota of 240 enlisted women entered the Hospital Corps School every two weeks. On 6 March 1945, the curriculum was lengthened to a standard sixteen weeks' course in order to provide a more fundamental training for the corpswomen. This course conformed to the standard one outlined in the catalog of courses for the Hospital Corps. It marked the first step forward in standardizing and improving the course of study at the School. Shortly

100. Annabelle R. Decker, "Hospital Corps WAVES," in Hospital Corps Quarterly, vol. 18, No. 16, (June 1945), pp. 24-25.

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after, 1 May 1945, the curriculum was changed again to an eight weeks' course of instruction.

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The first step in the chain of indoctrination for new recruits (V-10) was the eight weeks' boot training at the United States Naval Training School (Hunter College), Bronx, New York. This was followed by a screening and classification interview to determine their scholastic and mental adaptability to the Hospital Corps. Those who were qualified were then sent to this Naval Hospital Corps School (WR) for basic training in the Hospital Corps. Those women who were already qualified by civilian experience as technicians, laboratory assistants, or nurses' aides were sent directly from boot camp at Hunter College, New York, to the St. Albans or San Diego Naval Hospitals for special courses.

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The basic training of the Hospital Corps WAVES was not completed until these students had fulfilled the additional requisite of three weeks of ward duty at one of the large naval hospitals. It is significant to note that these Hospital Corps WAVES were given the same basic training outlined in the catalog of Hospital Corps Schools as male hospital corpsmen, because they had to compete with the men in examinations for advancement in rating. That is why the course at Bethesda was not altered.

101. National Naval Medical Center, Historical Supplement to Fourth Quarterly Sanitary Report for the Period of World War II of U. S. Naval Hospital Corps School (WR), 20 Dec. 1945.

102. Annabelle R. Decker, "Hospital Corps WAVES", in Hospital Corps Quarterly, vol. 18, No. 16, (June 1945), pp. 24-25.

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The Hospital Corps WAVES were not only assigned to naval hospitals after they had completed their training but also to all Navy activities that required the services of representatives of the Medical Department. In these various assignments the personnel served in clerical and minor administrative capacities. Some had taken additional training qualifying them as technicians in the clinical X-ray, physical therapy, dental, or rather special laboratories. Others worked in the commissary department or in the medical storeroom. Other corpswaves became assistants in the operating room, while a great many were assigned duty as bookkeepers or telephone operators, as clerks or general assistants. Some were assigned duty in dependents' clinics and dispensaries. Many were given routine ward duty or they were placed in any other position where their services could be used in caring for the sick or the injured personnel of the Navy and Marine Corps. More than 500 WAVES were ordered to duty in Hawaii after the passage of the bill permitting WAVES to serve outside the continental limits of the United States.

Hospital Corps WAVES who showed exceptional ability were selected to be instructors at the Hospital Corps School for WAVES, at Bethesda. Those who revealed special aptitude were selected for instruction in the art of painting acrylic eyes. Others were given instruction at the naval air stations in low pressure chamber techniques. On 8 January 1946, the last class at the Hospital Corps School at Bethesda graduated, bringing the total number of Hospital Corps WAVES graduated

103. National Naval Medical Center, Historical Supplement to Fourth Quarterly Sanitary Report for the Period of World War II of U. S. Naval Hospital Corps School (WR), 28 Dec. 1945.

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from this school to 8,390.

The selection of Bethesda as the location for the Hospital Corps School (WR) proved to be a judicious choice. The naval hospital and its associated activities were very cooperative in providing teaching aids and field trips. The School was built in the northeast corner of the Medical Center reservation, near a grove of trees, and quite far removed from external sounds and activity.

The U. S. Naval Hospital Corps School (WR) is one of the six separate commands at the National Naval Medical Center, Bethesda, Maryland, which, like the other separate commands, has its own commanding officer who is under the general administrative command of the medical officer in command of the National Naval Medical Center. The commanding officers of this School have been:

Capt. John Harper, (MC), USN,
14 January 1944 to 12 April 1945.

Capt. Martin V. Brown, (MC), USN,
12 April 1945 to 21 January 1946.

As a division of the Medical Center, this School is, through the commanding officer of the National Naval Medical Center, under the cognizance of the Bureau of Medicine and Surgery and it is also under the commandant, Potomac River Naval Command, for administrative purposes.

This Hospital Corps School (WR) had been created in order to answer the pressing need for giving a basic academic training to WAVES who were admitted into the Corps similar to that which corpsmen were receiving. Its fine creditable record was terminated with the graduation

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of the last class, in January 1946. The official decommissioning of the School took place 21 January 1946.

U. S. Naval School of Hospital Administration

The Hospital Corps Officers School was established 12 July 1943. It functioned as a department under the command of the medical officer in command of the U. S. Naval Hospital, National Naval Medical Center.¹⁰⁴ In the course of that period it had proved its real worth in graduating administrative officers.

The United States Naval School of Hospital Administration, the new designation of the Hospital Corps Officers School, was established as a separate command of the National Naval Medical Center on 2 August 1945. This activity was officially commissioned on 5 September with Lt. Comdr. G. F. Lyon as the appointed officer-in-charge. The formal commissioning ceremonies were held 14 September before a distinguished audience of officers and guests. At the ceremonies, Rear Admiral Chambers read the orders establishing the school and the principal address was delivered by the Surgeon General, Vice Admiral McIntire.

The current course of instruction is of 8 months' duration, consisting of 5 months of didactic and class room work and 3 months of practical laboratory instruction. The instruction course includes the following: Medical Department accounting, property, procurement, etc.; office management and hospital personnel administration; legal procedure and naval laws; commercial law; public speaking; commissary administration;

104. National Naval Medical Center, Bethesda, Maryland, Brief Historical Sketch, Feb. 1945.

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maintenance methods and special subjects. The primary function of the Naval School of Hospital Administration is to train Hospital Corps officers in naval hospital administration. By the end of September 1945, a total of almost 200 officers had been graduated from the school.

The present assisting officers to the commanding officer, Lt. Comdr. G. F. Lyon, include the senior instructor, Lt. B. F. Duwel, who is also the head of the Department of Finance, Property and Accounting; the head of the Department of Commissary, Lt. Comdr. W. S. Burr; the head of the Department of Personnel Administration, Lt. W. W. Willgrube; the head of the Department of Naval Law and Procedures, Lt. (jg) W. H. Moorman, and the head of the Department of Maintenance and Civil Readjustment, Lt. T. J. Hudgens. ¹⁰⁵ The latter department had been instituted at the School in July 1944, to meet the needs of demobilization and to inform personnel who are being discharged of their rights and benefits under the various laws.

This activity is one of the six subordinate commands of the National Naval Medical Center under the general administrative authority of the commanding officer of the Center.

Organization and Legislative History
of the National Naval Medical Center
at Bethesda, Maryland.

The National Naval Medical Center was established by General Order No. 70, 20 June 1935. This order created a unitary organization which shall consist of the Naval Medical School and Naval Hospital,

105. National Naval Medical Center 'News', 22 Sept. 1945, vol. I, No. 38.

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Washington, D. C., which functions "as a medical, diagnostic and educational center, under the control of the Bureau of Medicine and Surgery," and with an officer of the Medical Corps in command.

Effective 5 February 1942, the date of the commissioning of the Center, the name of the organization was changed to "The National Naval Medical Center,"¹⁰⁶ In view of this change in name, General Order No. 70 was later cancelled by General Order No. 205, 27 January 1944.¹⁰⁷

Then, General Order No. 163 grouped the Naval Medical Center for purposes of military control only with certain other shore stations under the commandant, Potomac River Naval Command. The order provided that the commandant would be the "Commandant Washington Navy Yard, who will be additionally ordered as such."

General Order No. 163 was cancelled and superseded by General Order No. 192 of 3 January 1944, which provided that the National Naval Medical Center, Bethesda, 14, Maryland, be included in the list of naval activities grouped under the Potomac River Naval Command for the purpose of military control.¹⁰⁸ Correction of the designation "Naval Medical

106. General Files, Bureau of Medicine and Surgery, SecNav ltr., serial 43213 of 6 Feb. 1942.

107. Navy Department, General Orders, No. 205, 27 Jan. 1944, par. 1: "1. General Order No. 70 of June 20, 1935, which established the Naval Medical Center, Washington, D.C., is hereby cancelled, as the facilities thereof are now included in the National Naval Medical Center, Bethesda, Maryland,"

108. Navy Department, General Orders, No. 192, 3 Jan. 1944, par. 3: "The naval shore activities, located in the Potomac River area, are grouped together for the purpose of military control to form the Potomac River Naval Command. The Commandant will be the Commandant, Washington Navy Yard, who will be additionally ordered as such."

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Center" (listed in the first draft of the order) was made in the regular publication of General Order No. 192 in accordance with a request of the commanding officer of the National Naval Medical Center.

General Order No. 192 did not make any change in the actual status of the Medical Center. In a memorandum written by W. S. Douglass to the Surgeon General (in response to a note from Vice Admiral McIntire asking if General Order No. 192 had made any change in the status of the Medical Center) it was affirmed that no change had been made by said order in the status of the Center. ¹⁰⁹ Douglass corroborated the truth of his statement in his reference to Article 1482(1) and (4)(a) and (b) of U. S. Navy Regulations. These sections clearly and comprehensively express the fact that the commandant has no supervision over the details of work or administration of the units in his district. ¹¹⁰

109. General Files, Bureau of Medicine and Surgery, Memo for Chief BuMed, 17 Feb. 1944, from W. S. Douglass.

110. United States Navy Regulations, Art. No. 1,482, Sec.(1) and (4) (a) and (b):

"(1) In the administration of affairs in the district the commandant shall not personally supervise the details of work or administration of the several groups, or units, but will transact necessary business with the officer commanding the group or unit. These groups or units will be coordinate, and every effort will be made to develop complete intercommunication and cooperation among the several groups and units in regard to all matters requiring joint action.

"(4)(a) The responsibility for the organization and efficient operation of all administrative units within naval districts, such as navy yards, torpedo stations, training stations, recruiting stations, submarine bases, schools, etc. rests with the officer in direct command of such units.

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Section (4)(b) of Article 1,482 indicates that the National Naval Medical Center would maintain its status as of January 1944, namely, this unit would continue to operate under the commandant of the Potomac River Naval Command for the purpose of military defense of the District and under the Bureau of Medicine and Surgery for administrative purposes. Furthermore, the status of the Center was sustained by a directive issued by the Secretary of the Navy to all ships and stations regarding the establishment of the National Naval Medical Center
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at Bethesda.

Thus, the Secretary's Order of 6 February 1942 and the wording of General Order No. 192, paragraph 5, specifying that the duties and responsibilities of the commandant of the Potomac River Naval Command shall be as set forth in Chapter 41, Section 2, United States Navy Regulations succinctly maintains the status of the Medical Center at Bethesda as an activity under the administrative control of the Bureau of

"(b) In the administration of affairs within his district, the commandant shall not direct nor shall he be responsible for the technical work being carried on by any of the various organizations, but the head of each administrative unit will keep him informed regarding the general nature and scope of the work carried on, and supply him with all information that will be of value in formulating plans (1) for the coordination of all naval activities within the district and (2) for the operation and defense of the district in the event of war."

111. General Files, BuMed, SecNav, ltr., Serial 43213 of 6 Feb. 1942, NH6/N21(390523). This directive stated: "The naval medical facilities under the cognizance of the Bureau of Medicine and Surgery being completed at Bethesda, Maryland, are hereby established as National Naval Medical Center, Bethesda, Maryland, effective 5 February, 1942."

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The units of the Naval Medical Center were established to carry out the unique functions which set them apart from the other hospitals and schools under the cognizance of the Bureau of Medicine and Surgery. Rear Adm. Harold W. Smith, head of the Research Division of the Bureau, in a personal memorandum for the Surgeon General, indicated that he believed that "The Center is more than an adjunct of the Bureau: it is functionally a part of the Bureau, physically detached from the Bureau only for reasons of space."¹¹³

As previously indicated, the Naval Medical Center had originally consisted of two subordinate administrative units, the United States Naval Hospital and the United States Naval Medical School. On 1 April 1936 the United States Naval Dental School was formed as a distinct unit and attached to the Naval Medical Center by authority of the Secretary of the Navy. The Naval Medical Research Institute was commissioned 27 October 1942 as a separate administrative command coordinate with the other units of the National Naval Medical Center. The United States Naval Hospital Corps School (Women's Reserve) was placed in commission 12 January 1944, and finally on 2 August 1945 the United States Naval School of Hospital Administration was established. Thus

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112. Navy Department General Orders, No. 192, 3 Jan. 1944, par. 5. Paragraph 5 stated: "The duties and responsibilities of the commanders of these commands are in general as set forth in Chapter 41, Part I, sections 2 and 3, United States Navy Regulations, 1920."
113. General Files, BuMed, Memo to Chief BuMed from Rear Adm. H. W. Smith, 2 July 1941.

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the definition of the National Naval Medical Center as contained in the Manual of the Medical Department logically evolves out of the growth
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and development of this institution.

It is very difficult to indicate to what extent cognizance of the Bureau of Medicine and Surgery extends over the Center's activities. The Bureau does determine from time to time the courses of instruction which the schools of the Center shall offer "to accord with current needs of the service." On occasion, the commanding officer of each school informs the Bureau of each student's special aptitude or inaptitude in addition to supervising the courses of instruction and examinations. The Bureau makes recommendations from Medical Department personnel for assignment to these schools for instruction by official orders. Also, the research projects of the Naval Medical Research Institute have to meet with the approval and are under the direction
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of the Research Division of the Bureau of Medicine and Surgery.

114. Bureau of Medicine and Surgery, Manual of the Medical Department, Part I, Chap. 6C, Sects. 16C1, 16C2 states the definition of the Center: "The National Naval Medical Center, Bethesda, Maryland, is comprised of the following subordinate commands:

- (a) United States Naval Hospital
- (b) United States Naval Medical School
- (c) United States Naval Dental School
- (d) Naval Medical Research Institute
- (e) United States Naval Hospital Corps School
(Women's Reserve)
- (f) United States Naval School of Hospital Administration

.....Each of these units is a subordinate command of the National Naval Medical Center, and the medical officer in command of each assumes the prerogatives and is charged with the responsibilities of command."

115. Bureau of Medicine and Surgery, Manual of the Medical Department, Part I, Chap. 6C, Sect. II and Sect. III.

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In this respect, of course, the design of the Bureau is to enable it to give full cooperation with the research in progress in which individuals in the Medical Department are engaged, either individually or in conjunction with others. As previously indicated, under the United States Naval Hospital Sections the Bureau's duties and responsibilities include the upkeep and operation of this hospital and repair to public works and utilities of this hospital according to United States Navy Regulation.

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The accompanying organization chart of the National Naval Medical Center gives a graphic delineation of the administrative structures or plan of organization, a much more intelligible and clear picture than any further verbal description could convey.

Vice Admiral McIntire in his address observing V-E Day, lauded the Medical Department for the part it played in winning the European War and referring to the National Naval Medical Center he asserted, "This fine organization has done a tremendous lot for what has gone before, both in the Atlantic and Pacific and in the Mediterranean."

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116. United States Navy Regulations, No. 457, Chap. 9(2).

The Bureau is "charged with the upkeep and operation of all naval hospitals the Naval Medical School and of all technical schools established for the education or training of members of the Medical Corps, Dental Corps, Nurses Corps, and Hospital Corps, and with their repairs."

117. National Naval Medical Center 'News', 12 May 1945, vol. I, No. 19.

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APPENDIX A

Source: A. H. Yando, Captain, "United States Naval
Dental School" in United States Medical
Bulletin, vol. XL, No. 2, April 1942,
pp. 267-277.

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APPENDIX A

A brief outline of the curriculum of the Naval Dental School:

The activities of the Naval Dental School are divided into three main groups:

- I. Teaching or Instruction
- II. Clinical
- III. Research

The instruction duties are directed toward three study years:

- A. Postgraduate group - dental officers ordered back from various stations and ships for refresher courses.
- B. Graduate group - newly commissioned dental officers undergoing an indoctrination course.
- C. Undergraduate group - hospital corpsmen studying to be certified as general or laboratory dental technicians.

A. Postgraduate Groups

- 1. Regular dental officers ordered back to the Naval Dental School from time to time to bring their dental knowledge up to date.
- 2. Courses are of practical nature - supplemented with lectures:
 - a. Recent developments in oral diagnosis
 - b. Oral bacteriology
 - c. Prosthesis
 - d. Oral Pathology
 - e. Oral Histology
 - f. Histo - Pathology
 - g. Hematology
 - h. Oral Surgery

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3. Objective of course: To bring dental officers up to date in the newest developments in dentistry.

B. Graduate Group

Indoctrination instruction divided into three parts.

1. Theory - lectures and illustrations in general subjects - medico-dento-military subjects.
 - a. Lectures in specific subjects in theory in oral and general subjects include: prosthesis, operative dentistry, oral bacteriology, oral clinical pathology, oral histology, oral histo-pathology, surgery, roentgenology, hematology, tropical medicine, urology, ophthalmology, otorhinolaryngology and cariology.
 - b. Practical work - Clinical work at Naval Dental School where dental officers can gain experience in naval methods.
 - (1) Also civilian hospitals are visited and their staff present patients showing oral manifestations of local and general conditions - patients infected with tuberculosis, nutritional disturbances and other cases of dental interest.
2. Military Phase - covered in course presented at Marine Barracks at Quantico, Virginia, and visits to various naval units.
 - a. Lectures in medico-dento - military subjects include: atmospheric hygiene, aviation medicine, naval hygiene, battle surgery, first aid, Manual of the Medical Department, chemical warfare, medical and dental literature.
 - (1) Medical subject lectures are given by faculty of Naval Medical School.
 - b. Military subjects include: Uniform Regulations, Navy Regulations, General Orders, Circular letters, Naval Traditions and Customs Ashore and Afloat, Collateral Duties of Dental Officers, Naval Publications, Damage Control, Organization of Fleet, Organization of Navy Department, Courts and Boards, Social Obligations. (Lectures in above subjects given by line officers from various bureaus of Navy Department)

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- c. Practical military subjects subdivided into field trips courses at Marine Barracks, Quantico, Virginia.

- (1) At Quantico - lectures, demonstrations and drills presented

- (a) Lectures - military duties, Fleet Marine Force, organization of Marine Corps, etc.

- (b) Demonstrations - guard mounting, manual of the sword, rifle range, etc.

- (2) Field Trips

- (a) Anacostia, D. C. - aviation observations

- (b) Dahlgren, Maryland - observation in testing of armaments

- (c) Bureau of Standards - indoctrination in methods of testing dental materials

- (d) Navy Yard - visits aboard naval combatant ships of various types

- 3. Research - this third phase is required to start each newly commissioned dental officer on some specific problem early in his career.

- a. Thesis preparation required for publication

- (1) Instruction in thesis preparation given; problems of original nature may be investigated.

- b. Case reports and abstracts are submitted.

- c. Class discussions on topics of recent dental meetings and current dental literature held.

C. Undergraduate Groups

Enlisted personnel who have a certificate as hospital corpsmen from a Naval Hospital Corps Training School are eligible for enrollment.

- 1. Instruction covers theory and practical work-first main division.

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a. Theory

- (1) Lectures in oral hygiene, oral-histopathology, oral histology, oral clinical pathology, odontography, oral bacteriology, dental records and forms, supply table data, oral roentgenology, oral prophylaxis, materia medica, therapeutics, office routine, instrumentation, sterilization and novocaine preparation.
- (2) Theoretical subjects illustrated by lantern slides.

b. Practical

- (1) Exercises in mixing amalgams and cements, in prophylaxis on mannikins, charting of cases and keeping records.
- (2) Dental student technicians given practical experience thru assisting dental officers at the chair, taking roentgenograms, and finally, a sufficiently long tutored course in actual dental prophylaxis on patients with their own record keeping, charting and handling of appointments.
- (3) Courses offered in mechanical dentistry leading to certificate of laboratory dental technician.
- (4) Subjects given are composed of illustration lectures and practical laboratory exercises covering construction of full and partial dentures.
- (5) Courses in construction of various types of fixed and removable bridges, crowns and inlays are provided.

2. Second Main division - Clinical work - all members of faculty participate.

a. Dental treatment given to patients includes:

- (1) Operative Dentistry -

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- (a) Restorative measures using amalgams, cements, gold inlays and prophylaxis.
 - (b) Therapeutic measures - instituted of local and general nature of drugs.
 - (c) Oral surgery - routine extractions, removal of impacted teeth and tumors, gingivectomy, alveolectomy and treatment of jaw fractures.
- b. Construction of prosthetic appliances of fixed and removable type using acrylic resins, titanium and gold-part of course work.
3. Third Main division - Research - designed to enable well-qualified dental officers to devote their full time to exhaustive original research.
- a. Nature of such work divided into three groups:
- (1) Experimental, statistical and bibliographical-clinical laboratory and field research.
 - (2) ~~Clinical research includes studies in~~ symptomatology and diagnosis.
 - (3) Laboratory research is available in oral histology, oral bacteriology, physics, chemistry, endocrinology, nutrition and hematology.

Such in brief is the organization set-up of activities of the Naval Dental School. The schedules established for carrying it out have been sufficiently flexible to meet almost any requirement of any unexpected or emergency nature referring principally to time factor.

From September 1943 to July 1944 39 dental officers under instruction have administered 267 pentothal sodium anesthetics, 54 drop ether, 75 closed absorption, 496 infusions and 1,270 venipunctures.

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APPENDIX B

Source: "Historical Account of the Activities of
the Naval Medical Research Institute during
World War II", 17 December 1945.

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APPENDIX B

A brief statement relative to some of the more important research and developments drawn up by the Naval Medical Research Institute has been compiled below. This is a mere condensation of the research undertaken at the Institute which has been elaborated in the review given in the "Historical Account of the Activities of the Naval Medical Research Institute during World War II", 17 December 1945.

Water and Food for Shipwrecked Personnel: This was the first project assigned to the Institute. In February 1943 Lt. Comdr. Speelman, H(S), USNR, developed a new method of desalinating sea water. The apparatus developed for use of this method required multiple operations. It was relinquished in favor of the Permutet method which lent itself to a onestep operation. This method consisted of the use of plastic bags with filters of light weight and small space. The life raft trials in the Gulf of Mexico in July of 1943 established the usefulness of this procedure. It was adopted for use in the Bureau of Aeronautics' life rafts.

While water for the shipwrecked was the principal concern, the rations for rafts and life boats was also investigated. That any food made available to survivors "must lend itself to easy consumption and efficient metabolism" was the concept which guided the research workers in their studies. A ration consisting of three different types of tablets containing sugar, fat, and malted milk, the "NMRI Tablet Emergency Ration", was developed. This ration, packaged in small cans, was accepted by the Bureau of Aeronautics for inclusion in the "survival kit" of aviators and aircrewmembers and designated as "U. S. Navy Emergency Ration for Life Rafts."

Sunburn Prevention: Testing work in this connection evolved a more effective anti-sunburn cream for use in kitson life rafts and an anti-sunburn lipstick, both accepted for use in the Navy.

Prevention of Immersion Foot: Study in this field developed a lightweight boot to protect feet immersed in ice water for many hours. Also, foot gear was similarly designed to prevent "trench foot."

Prevention of General Effects of Immersion in Cold Water: Here, the general clothing by keeping it dry with water-tight garments was used. Research work resulted in the design of antiexposure suits which will enable men to survive for many hours in the coldest ocean waters, while, on the other hand, men who are not wearing these suits will die in less than an hour.

Protection against Environmental Cold: Many types of clothing and appliances for use in cold weather were tested and evaluated: for example, clothing combinations for aviators and electrically heated blankets to keep patients warm during air transport.

First-Aid Kits for Aviators: Individual first-aid kits for aviation personnel and first-aid kits for pneumatic life rafts were developed which were limited in size and weight, yet included the essential items. They were made to withstand shock and abrasion, were refillable, and were moisture proof before and after breaking the seal. They were approved by Bureau of Medicine and Surgery and Bureau of Aeronautics.

Protection against Missiles: Unbonded nylon fabric was chosen on the basis of experimentation as the armor for the construction of an aviation flak suit to be used for protection of aviation personnel from shell fragments. This same material was used in the construction of an armored suit for ordnance personnel engaged in the design and testing of fuses.

Protection against Blast Injuries: Most of the experimental study in this work was done in collaboration with the U. S. Naval Engineering Experimental Station, Annapolis, Maryland. It was discovered that a high degree of protection may be afforded by "interposing a deformable collapsible medium between the feet of personnel and the test table surface subjected to shock simulating solid blast." A number of heels for shoes, and mats for decks were designed in a manner to assure protection against solid blast.

Treatment and Prevention of Burns: A battle dress for flashburn protection was found suitable only for men on topside. In extensive research for improving burn treatment it was shown that quantities of boric acid sufficient to produce poisoning are absorbed from 10 percent boric acid ointment applied to a burn involving only 4 percent of the surface area of the body. On the basis of this study the use of boric acid ointment for the treatment of burns was discontinued in the armed services.

Blood Substitutes: At the beginning of World War II dried plasma was used extensively. Research on plasma preserved in the liquid state resulted in the conclusion that liquid plasma when properly prepared may be stored for as long as three years at room temperature and remain a safe transfusion agent as long as it is not used for treatment of infections or hemorrhagic diseases. It may be used in the treatment of shock, burns, and hypoproteinemia.

Expendable Refrigerator for Transporting Whole Blood by Aircraft: A portable refrigerator was designed which would maintain blood between 4° and 10° C. for 36 hours of an average ambient temperature of 22° C. using ice as the refrigerant and fiber glass for insulation. It carried 16 bottles of blood and weighed only 77 pounds with its contents.

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Effects of Cool Quarters on Efficiency of Navy Personnel Aboard Ship: In concurrence of studies made it was recommended in December of 1943 that steps be taken to install air conditioning equipment for berthing spaces, sick bays and operating rooms and other compartments where men have to work or sleep. It is anticipated that air conditioning of naval vessels will be included wherever possible in future ship construction.

Heat Rash: Practical outstanding contribution made in this connection is that "living as little as twelve hours a day in a place where air conditions are such that persons will not sweat at rest will prevent heat rash."

New Salt Tablet for Use in Hot Environments: A new cellulose impregnated salt tablet was developed which was shown to be far less irritating than the standard tablet which resulted in such untoward symptoms.

Aviation Medicine: Medical research in aviation was delayed at the Institute until the early months of 1943 when the low pressure tank was completed. Then an increasing number of aviation problems were referred to the Institute. By the end of the war three long-term aviation projects had been set up at the Institute: (1) studies of the biomechanics of aviation crash injuries and protective measures, (2) human factors in cockpit design, and (3) physiologic effects of vibration.

Resuscitation Devices: A resuscitator-inhalator unit was designed to meet requirements of portability and size. This unit was adopted for military use.

Medical Research Related to Submarine Warfare and to Diving: In collaboration with Experimental Diving Unit, Navy Yard, Washington, D. C., an expanded recompression table based upon considerable physiologic data was devised for the treatment of decompression sickness in divers. Submarine investigations were made on limits of carbon dioxide concentration and other problems.

Night Vision: A compact adaptometer which was equal in accuracy to previous ones but more practical because of its small size and portability was developed to measure acuity of night vision among large groups of men.

Seasickness: Studies of seasickness remedies have contributed significantly to fundamental knowledge of the causes of seasickness. A number of remedies were accepted aboard ship. The Navy accepted one of these (hyoscine) for use in life rafts, aboard which most men become seasick to a degree that endangers survival.

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Dental Research: Several problems, gingivitis, oral hygiene, et cetera have been investigated by this small unit for dental research. It was also included in the Institute.

Penicillin in Treatment of Peritonitis: Results of study in this instance indicated that penicillin therapy alone would prove valuable in the treatment of peritonitis and "a prophylaxis against peritonitis complicating abdominal wounds and appendicitis."

Insect Repellents: In January of 1945 a group of investigators of the Institute formulated several superior repellents which were effective against most species of mosquitoes. These repellents, compounds of certain naphthols and hydrogenated diphenyls, have been proved to have more than twice the repellency duration of earlier repellents.

Quinacrine Dermofluorometer: A rugged dermofluorometer was designed to measure specifically the palmar skin fluorescence induced by quinacrine (atabrine), the best suppressive therapy in maintaining the health and efficiency of troops in malarious regions. This instrument will be useful in enforcing adequate quinacrine suppressive therapy in troops.

Therapy of Malaria: The Institute took part in the program of evaluation of anti-malarials and made several important contributions. One of these was the evaluation of quinine, quinacrine, and SN-6911 for intravenous use. It was found that SN-6911 was the least hazardous when given intravenously. Research is still in progress to find a chemotherapeutic agent to cure relapsing vivax malaria.

Tsutsugamushi Disease (Scrub Typhus): The administering of methylene blue drug in clinical scrub typhus produced a distinctly beneficial effect, especially in moderately ill patients where symptoms, particularly fever, were considerably reduced in severity and "there were only two deaths in the treated series whereas five occurred in the untreated group of thirty-six cases." However, it appeared that the drug could not be tolerated in sufficiently large doses by man to be wholly effective. In view of the value of methylene blue as an oxygen carrier, studies of the action of this drug in the infection are underway which may bring to light "basic principles underlying the chemo-therapy of virus and rickettsial disease."

Photofluorographic Camera for Mass X-Ray Chest Surveys: The Navy was an early pioneer in the development of photofluorographic equipment. In 1942 it was decided to design and construct a photofluorographic camera. This was accomplished and 75 of the cameras were procured. Reports on the performance of this photofluorographic camera indicate that it is entirely satisfactory.

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Many other important studies were carried on by the Institute including one on nutrition and messing, one on "schistosomiasis," one on the purification of canteen drinking water and several on carbon monoxide. In addition, numerous minor investigations and tests of supplies and equipment were carried out at the request of the Bureau of Medicine and Surgery and other bureaus of the Navy Department. During the period of this wartime history of the National Medical Research Institute, there were 536 reports on research projects and on minor investigations and tests submitted to the Bureau of Medicine and Surgery.

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NATIONAL NAVAL MEDICAL CENTER, BETHESDA, MARYLAND

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CHAPTER XI

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DISPENSARIES

I. Introduction

Dispensaries were among the less spectacular continental installations of the Navy Medical Department. To them fell the task of "prevention and control of disease, promotion of health, and treatment of the sick and injured in the Navy".¹ They were the practical application of the medical officer's duty of providing (including quarters) for the care of the sick. Many dispensaries were actually hospitals, but this was not their purpose as Capt. W. J. C. Agnew, (MC), USN, now Rear Admiral and Assistant to Bureau, defined them: "At all shore activities the medical facilities other than naval hospitals provided for the immediate temporary care of the sick and injured are designated as dispensaries and are usually located in separate buildings or in suitable places in buildings."²

However, these medical facilities ranged from first-aid stations manned by a single hospital corpsman to modern 100-bed hospitals. Their work ranged from routine physical examinations to surgery; their patients included Navy personnel, their dependents, and civilian workers.

1. U. S. Navy Regulations, Articles 1132-1135.

2. "The Navy's Medical Department" from War Medicine, May 1941, vol. I, p. 23.

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Dispensaries answered the need for medical care and advice of Navy, Coast Guard, and Marine Corps personnel and their dependents. All encountered the same basic problems of treatment of the sick and injured, maintenance of sanitary conditions, the use of preventive medicine, and the handling of emergencies. To survey all the existing dispensaries would be time consuming and repetitious, as well as of questionable value. Classification, albeit an arbitrary one, seemed advantageous for reaching an understanding of the situation. Division by way of naval districts would have been the simplest, but not the most felicitous, for additional division would be necessary. A geographical division would have been useful, because malaria, mosquito control, frostbite, dermatitis, and even incidence of venereal disease, were often accidents of location. Division by chronology would have shown the wartime trend, but would actually have offered an erroneous view, because problems at dispensaries did not group well by time. Logic appeared, however, to favor a division by the kind of activity served, for problems varied with the type of personnel, the work of the station, and the size of the station. Dispensaries at Navy yards and other industrial establishments, those at training centers, and those at receiving stations were different in that their major emphases were different. Into still another category must be placed the four dispensaries - Long Beach, its branch at San Pedro, Miami, and Washington - which were officially designated as U. S. Naval Dispensaries and were directly under the technical and management control of the Bureau

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of Medicine and Surgery.

They, like all other dispensaries, however, fitted into the naval district or river command, with the medical officer subordinate to both the commanding officer of the station and the district medical officer.

II U. S. Naval Dispensaries

The ordinary station dispensary depended upon the station for maintenance and upkeep of the building or buildings it occupied; the officially designated "U. S. Naval Dispensaries" at Miami, Washington, Long Beach, and the latter's San Pedro branch depended upon the Bureau of Medicine and Surgery for such maintenance. The work of the USN Dispensary, Long Beach, California, was illustrative of the services performed by this group. The dispensary proper occupied the third, fourth, and fifth floors, each of which provided approximately 3,600 square feet of storage space, and basement storage space in the Federal Building. It also maintained, staffed, and supplied two first-aid stations, one at Pico Street Landing in Long Beach, and one located in Union Station, Los Angeles, a prophylaxis station located in the Jergins Trust Building, Long Beach, and a clinic at the naval housing project.

As an activity of the Eleventh Naval District, it was under the administrative command of the Commander, Naval Operating Base, Terminal Island. Under the medical officer in command, who was

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also the assistant to the district medical officer, were other medical officers, nurses, hospital corpsmen, and WAVES. The services were divided into surgery, medicine, obstetrics, gynecology, eye, ear, nose and throat, urology, and pediatrics. The San Pedro Branch Dispensary was under this command with a senior medical officer, medical officers, nurses, hospital corpsmen and civil service employees.

The dispensary had been approved by California health authorities for prenatal and premarital examinations. Extra-dispensary work included caring for medical, surgical, and obstetrical cases of dependents in civilian hospitals, house calls to dependents in Long Beach and San Pedro, creation and functioning of boards of medical examiners, and the care, preparation and handling of the dead. Actually, it was primarily used for treatment of dependents whose numbers rose from the 1942 level of 60,000 to the 1945 level of approximately 95,000. In 1942, the dependents were hospitalized in two Long Beach civilian hospitals; in 1945, they could be hospitalized in the specially constructed 150-bed dependent wing of Long Beach Naval Hospital. On the other hand, in 1942 there had been an adequate number of medical officers on duty even though obstetricians were not always available; in 1945 the small number of medical officers made it necessary to turn dependents away without the desired medical attention.³

3. U. S. Naval Dispensary, Long Beach, California, Historical Supplement to Fourth Quarterly Sanitary Report, Cumulative Report for Period of World War II, 23 Nov. 1945. This activity was already in commission on 7 Dec. 1941.

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The U. S. Naval Dispensary, Miami, was opened to patients on 31 July 1942. It was located in a two-story building formerly used by a clinic near Seventh Naval District headquarters. By the end of 1943 an auxiliary dispensary where morning sick call could be held was established in the DuPont building. Its additional work included serving patients at Jackson Memorial Hospital in obstetrics, surgery, medicine, and pediatrics at the rate of some 55 cases per day. In 1943 the dispensary was operating with 2,000 active service personnel, 35,000 dependents, 600 civil service workers, and transients in mind.⁴

The U. S. Naval Dispensary, Washington, D. C., was located in the ninth wing of the Navy Department main building. During the year 1943 it was materially enlarged by the addition of space for the electrocardiographic and basal metabolism ratio room, examining rooms, inoculation room, an additional dental office, and a more spacious obstetrical department.

With the large number of naval personnel and their dependents, branch dispensaries appeared the logical development. The Bellevue branch was opened 8 March 1943 to afford services for the southeastern part of the city. When the medical officer on duty at the Naval Research Laboratory was detached without a relief, care

4. U. S. Naval Dispensary, Miami, Florida, Sanitary Report, Historical Data, 1943.

of this station's personnel was assumed. By the end of 1943 the branch constituted a complete clinic.

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In February 1943 a large portion of the Communications Division of the Navy Department was moved to a location some distance from the Department, which was designated the Naval Communications Annex. That same month a first-aid room with three pharmacist's mates was set up; in March a temporary dispensary was established with a medical officer, nurse, and ten corpsmen in attendance. By May a dispensary building of temporary construction provided room for additional services and 14 beds for the sick. To be completed early in 1944 were facilities for 14 additional beds, a scullery, garage, storerooms, additional dental offices, and a waiting room for EENT services. The dispensary was planned to care for approximately 5,000 active service personnel plus dependents in the immediate area. Although WAVES presented new medical problems, in general, maladjustments and minor neuroses accounted for many sick days. Night watches, the nature of the work, inadequate ventilation and inhalation of gases in the photographic laboratory and "Ditto" machine rooms were regarded as contributing factors.⁵

The above U. S. Naval Dispensaries were situated where major concentrations of active personnel and dependents were located

5. U. S. Naval Dispensary, Washington, D. C., Historical Data, Sanitary Report, 1943.

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The major volume of their work was care of dependents.

III Dispensaries Associated with Industrial Establishments

Dispensaries associated with industrial establishments were confronted with more than routine problems, for industrial hazards added to the work load. Most important of such establishments were the Navy yards whose medical officer came directly under the commanding officer of the yard in the chain of command and whose medical department was a separate division in the yard organization. Although the ranking medical officer has been referred to as the Yard Medical Officer and even the Senior Medical Officer, his official title was The Medical Officer despite the fact that he had other medical officers working under him. The accompanying chart from Charleston Navy Yard illustrated the typical Navy yard's medical department organization.

Ordinary medical care of naval personnel and emergency treatment of civilian personnel went on, but increasing emphasis was placed on industrial hygiene. Special wartime complications arose in industrial establishments from the increased turnover of employees and the employment of inexperienced, handicapped, and overaged persons. The normal cooperation between the medical department and the safety officer was implemented in 1940 by the addition of an industrial hygiene section within the medical department. The medical officer, Portsmouth (N.H.) Navy Yard,

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stated:

Industrial hygiene is a relatively new and important phase of preventive medicine. We are largely in the dark as to what other activities are doing and accomplishing along this line. A clearing house for information would be of value, something, for example, analagous to the BuMed News Letter.-----Officers and men trained in this work should be kept at it.⁶

It was the consensus of opinion among the yards that the training of employees in safety measures was one of the most important ways of reducing accidents.

Eye hazards were a major difficulty and injuries resulting from flash burns and foreign objects hitting the eye were numerous. The Portsmouth (N.H.) Yard discovered that few employees were making full use of their safety goggles, because they did not fit, were uncomfortable, were broken and never repaired, or were improper in type. In combating this situation, a goggle cart, which was set up to give daily service, proved invaluable. This moving cart was equipped for systematic inspection and spot repair of goggles. A trained and competent attendant accompanied the cart to service goggles, to see that the proper type was stocked and issued, and to check the installations and upkeep of safety goggle signs above emery wheels. A complete round of all the shops was made every five months. Over a ten month period 18,420 goggles were repaired and reconditioned.⁷

6. U. S. Naval Dispensary, Navy Yard, Portsmouth, N.H., Historical Supplement, Annual Sanitary Report for 1943.

7. Ibid.

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DECLASSIFIED Puget Sound Navy Yard worked out an eye survey program for

civil employees to eliminate mistakes, injuries, and discomfort.

A well equipped van, able to give 14 tests, traveled to the various shops to screen men for eye defects. Men who were color blind were given work in which color vision was not important. Refractions, when indicated, were performed in the industrial dispensary and safety glasses were furnished to personnel at low cost to themselves.⁸

The Charleston Navy Yard found eye-flash burns a major problem until all workers in exposed areas were supplied with special glasses. The protective-glass program reduced the incidence of such injuries from 110 per month to 10 per month.⁹

Other industrial hazards were metal fumes, lead poisoning, carbon-monoxide, tetryl, mercury, chromium, silica, cyanide and various solvents. All possible protective devices and equipment were in use and the safety program included periodic examinations of personnel working with such materials. Other industrial activities used much the same procedure because of the toxicity of various agents. The Naval Ammunition Depot, at Crane, Indiana, in addition to pre-employment examinations, continued Webster tests on urine, hemoglobin check-ups, blood tests and consultation service.¹⁰ The

8. Puget Sound Navy Yard, Washington, Historical Supplement to Fourth Quarterly Sanitary Report.

9. United States Navy Yard, Charleston, South Carolina, Historical Supplement to Fourth Quarterly Sanitary Report.

10. U.S.N. Ammunition Depot, Crane, Indiana, Historical Supplement to Fourth Quarterly Sanitary Report.

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Naval Ammunition Depot, St. Juliens Creek, Portsmouth, Virginia,

found a dermatitis resulting from a hand sifting operation in handling ammonium-picrate (explosive D powder). This was eliminated following the adoption of a mechanized modern sifting house suggested by the medical officer.¹¹

The average Navy yard, although concentrating on industrial hygiene, had such a manifold program as yard sanitation, industrial hygiene, X-ray, tuberculosis control, eye survey for civil employees, manufacture of dog tags, immunization, physical examinations, dental processing, and venereal disease control.

The impact of war upon a Navy yard may be seen by comparing the statistics of 7 December 1941 with those of 7 December 1944 at Norfolk Navy Yard, Portsmouth, Virginia:

7 December 1941 —

Physical plant

A 2-room Labor Board examining section.
An 8-bed sick bay at Marine Barracks
Main dispensary.

Personnel

5 medical officers
4 dental officers
1 Hospital Corps officer
1 nurse
45 hospital corpsmen

Personnel to be served

1,086 service
21,572 civilian

11. U. S. Naval Ammunition Depot, St. Julien's Creek, Portsmouth, Va., Historical Supplement to Fourth Quarterly Sanitary Report.

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7 December 1944--

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Physical plant

- Industrial dispensary
- 6-room Labor Board examining section
- 5 sick bays (57 beds in all)
- 8 sub-industrial dispensaries
- Photofluorographic section
- 24 first-aid and air-raid stations
- Industrial hygiene and sanitation section
with laboratories

Personnel

- 26 medical officers
- 22 dental officers
- 3 Hospital specialist officers
- 7 Hospital Corps officers
- 20 nurses
- 260 hospital corpsmen

Personnel to be served

- 2,741 service
- 39,306 civilians 12

IV Dispensaries Associated with
Training Activities

The principal function of the dispensaries connected with training stations has been the physical screening of all students. The activities with V-12 units found their chief additional problem to be treatment of trauma resulting from the rigid physical training program. Sanitary reports from these groups were uniform in comments upon low incidence or non-existence of venereal disease among the personnel.

Between 8 February 1943 and 9 August 1945, 91,913 WAVE recruits had reported, been selected, and classified for training

12. U. S. Navy Yard, Portsmouth, Va. Historical Supplement to Cumulative Report for Period of World War II, 28 Nov. 1945.

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at the U. S. Naval Training Station at the U. S. Naval Training School (WR), Bronx, New York City. Of the 260 recruits examined daily, 3.2 percent were discharged by reason of unsuitability. A special training program of health education, dealing with personnel hygiene, venereal disease, first aid, and mental hygiene was handled by the Medical Department by means of lecture, discussion and film. The chief complaint from recruits in sick call was the condition of their feet. The services of a chiropodist and the wearing of Navy issue shoes caused a marked improvement in this source of trouble.¹³

The U. S. Naval Training Station, Great Lakes, Illinois, provided a picture of rapid wartime expansion in both the number of trainees and the physical plant. At the outbreak of hostilities the facilities included five dispensary buildings with six 30-bed wards, one 32-bed ward, and one 20-bed ward. By May 1943, the expansion had reached the new height of six additional regular dispensaries, one large dispensary of 22 H-type wards with 30 beds in each ward, and a dispensary in the disciplinary barracks, while a 16-bed dispensary for WAVES was in process of construction. Prior to 7 December 1941, the staff was composed of the senior medical officer, 3 assistant medical officers, 38 dental officers, 1 chief pharmacist and 22 hospital corpsmen; by May 1943 the staff was composed of:

13. USNTS (WR), Bronx, New York. Historical Supplement to Fourth Quarterly Sanitary Report, Cumulative Report for Period of World War II, 29 Nov. 1945.

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76 medical officers
14 Hospital Corps officers
212 dental officers
69 nurses
1320 hospital corpsmen

Daily sick call over a period of three months had averaged approximately 3,500. High points of this period included examination of an average of 2,000 recruits per day, the record examination of 2,985 recruits in a single day, and the inoculation of 35,000 recruits in a day.¹⁴

Dispensaries at aviation training activities in addition to the routine sick call, examination, food inspection, etc., had the problems of crashes, flight physicals, Schneider tests, checking night vision and other aspects of aviation medicine. The Naval Air Station, Memphis, Tennessee, inaugurated a biographical card system as a valuable aid in checking flight officers. These cards contained all pertinent data on the officer, including any accidents or groundings, and his photograph. Doctors were enabled by the use of these cards to become acquainted with flight officers and so to notice frequent visits to sick bay, etc. Then, too, an Aviation Safety Board was organized to afford greater opportunity for the flight surgeons to acquaint themselves with the psychological reactions of flight personnel. It was considered that the station's low fatal accident rate was the direct result of this Board's functioning.

14. USNTS, Great Lakes, Illinois, War Diary in two parts -- Medical Department - Dental Department, 1 Jan. 1944.

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Medical care was extended to dependents whenever possible, but this was constricted by the fact that the few government quarters on the station forced a majority of the personnel to live on the beach. To meet this contingency, a family clinic was established in Memphis during 1943. Since the dispensary's number of beds was generally inadequate, particularly during the winter season, the adjacent naval hospital at Millington, Tennessee, afforded real relief. The medical staff of the dispensary was able to work on the sanitation and venereal disease programs more fully because all cases requiring major surgery or prolonged hospitalization were sent to the hospital.¹⁵

The Naval Air Station at Melbourne, Florida, gave operational training to pilots who had already completed intermediate training. Before the program here was begun, a streamlined medical examination, consisting of vision check, Schneider test, and a short interview by the flight surgeon, was performed. The athletic officer cooperated by having a step-up test conducted on each student officer. If his score was below 70, the officer was given a complete physical. Only in cases where the findings were negative was the officer certified for operational training. The flight surgeon augmented the program by close liaison with the instructors to follow up the work of these and any other officers who appeared to be a poor risk.

15. U. S. Naval Air Station, Memphis, Tennessee, Historical Supplement to Fourth Quarterly Sanitary Report, 19 Nov. 1945.

The station had 263 airplane crashes with 63 fatalities during the time 2,441 pilots were undergoing operational training. The greatest single lifesaving device, as illustrated in these crashes, was the shoulder strap, whose use was constantly emphasized by the flight surgeon.

The dispensary here afforded 74 beds as well as adequate space for the dependents' out-patient clinic. There was an average of 350 visits per month. The staff to handle regular sick calls, dependents' needs and the aviation program included 4 medical officers, 2 dental officers (increased to 4 in May 1945), 4 nurses, and 28 corpsmen. It was the opinion of the senior medical officer that the presence of a fifth medical officer would have permitted hospitalization of dependents in the dispensary.¹⁶

Dispensaries at training activities covered the general field of Navy medicine, but placed greatest emphasis on whatever phase best fitted into the station's general program.

V Dispensaries Associated with Receiving Stations

Receiving stations were set up to screen men for sea duty, men returning from combat duty, or personnel for distribution to various naval stations. They indoctrinated, processed, and

16. U. S. Naval Air Station, Melbourne, Florida, Historical Supplement to Fourth Quarterly Sanitary Report, Cumulative Report for Period 30 Nov. 1945.

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distributed enlisted personnel of the Navy. The dispensaries at such activities gave mental and physical examinations, checked health records, gave necessary inoculations, indoctrinated the men in malaria and venereal disease control, attended to necessary dental work (including prosthesis in many cases), and provided medical care. These activities, too, commented on the high incidence of venereal disease among the transients in the drafts being processed.

The U. S. Naval Receiving Station, Boston, Massachusetts, played an important role in the indoctrination of newly commissioned medical and dental reserve officers. The staff increased from 6 medical officers only to 8 medical officers, 5 Hospital Corps officers and pharmacists, and 4 nurses. The facilities expanded from a portion of the eighth deck to all of it plus a part of the ninth deck. A prosthetic dental activity placed in operation in 1943 was so urgently needed that it was never able to meet the demand of its services. During 1944 a total of 63,268 patients were seen at sick call, while a total of 2,109 were handled by the dental clinic.¹⁷

The U. S. Naval Receiving Station, Terminal Island, San Pedro, California, developed a mass screening technique as a result of psychiatric examination of survivors. It enabled the medical staff, in cooperation with the classification officer, to assign

17. U. S. Naval Receiving Station, Boston, Massachusetts, Historical Data, 27 Nov. 1945.

personnel duties in keeping with their physical and mental capacities. It also allowed for the picking out of those maladjusted individuals who needed further study and treatment.¹⁸

In March 1945 the U. S. Naval Receiving Station, Naval Operating Base (South Annex), Norfolk, Virginia, began complete physical examination of all personnel entering and leaving the command. By the end of that year 65,600 transient personnel, of whom 50 percent were released immediately, had been examined. Twenty-five percent of this 50 percent were released for duty upon a second examination; 10 percent additional were qualified within five days; the remaining 15 percent were hospitalized. A board of review, which was set up to observe the transient personnel, held for medical, dental, and mental reasons, acted promptly on each case to facilitate the turn over. A psychiatrist screened those who were still held.¹⁹

The U. S. Naval Receiving Station, Washington, D. C., was separated from the Navy Yard and established as a new command 19 January 1943. The dispensary consisted of two treatment rooms, a 14-bed ward for males, a physical therapy room, an X-ray room with dark room, and a small laboratory. The dispensary was under the

18. U. S. Naval Receiving Station, Terminal Island, San Pedro, California, Cumulative Historical Report for the Period of World War II, 2 Jan. 1946.

19. U. S. Naval Receiving Station, Naval Operating Base (South Annex), Norfolk, Virginia, Historical Narrative, 18 Oct. 1945.

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Navy Yard dispensary until 15 November 1943 when it was placed directly under the commanding officer of the receiving station. All patients requiring major surgery, those who would be incapacitated for long periods of time, and those dangerously ill were transferred to the U. S. Naval Hospital, National Naval Medical Center, Bethesda. The least effective part of the medical program has been the suppression of venereal diseases. The medical officer suggested that for these transients the lack of suitable social contact plus a certain reckless mental attitude of men recently in combat zones were the contributing factors.²⁰

VI Conclusion

An excellent epitome of the wartime dispensary problem lay in the Surgeon General's statement that "naval dispensaries are constructed and expanded to meet the specific medical needs of the personnel attached to the stations of which the dispensaries are a part". The rapid expansion of the Navy in terms of personnel and shore stations demanded an increase in size of existing dispensaries, the creation of new dispensaries, and amplification of the services rendered. Expediency and necessity dominated the program. The Bureau of Medicine and Surgery planned the expansion, but the field was often a step ahead. Stations virtually created their own dispensaries by combining vacant building space, supplies from

20. U. S. Naval Receiving Station, Washington, D. C., Historical Supplement to the Fourth Quarterly Sanitary Report, 8 Dec. 1944.

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one source, and beds from still another.²¹ Every dispensary was planned with the idea of caring for dependents, but changes here were also necessary. Some stations found that since quarters were not available, the majority of the personnel lived off the station. In order to offer adequate dependent service in this situation, it was necessary to establish clinics at naval housing projects or in the adjacent towns or cities. The volume of work caused activities to request additional personnel or specialized personnel. It was expedient to add a chiropodist where foot complaints were the chief reason for reporting at sick call; it was consistently necessary to supplement the surgical complement of dentists.

Dispensaries on the whole devoted much time to care of dependents. The value of this attention in terms of both the financial benefit and the morale of service personnel was incalculable. The average dispensary found the venereal disease program the least effective of its many activities. The stations nearest large cities found that educational efforts, including films, posters, and lectures, and prophylaxis stations, were useless unless local civil authorities cooperated. Comment indicated an exceptionally high rate where a large number of negro personnel were stationed.

21. At the Navy Department Conference of District Medical Officers held in Bureau of Medicine and Surgery, 11-12 October 1944. Captain Cushing reported that the Bureau had practically no knowledge of how many beds were in dispensaries or the situation in dispensaries. The 7 Dec. 1941 figure was approximately 223; the 14 Aug. 1945 figure was approximately 530.

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The pre-war dispensary's work was restricted to the immediate traumatic surgical emergency and medical cases not too seriously ill. In 1943, the Surgeon General largely reaffirmed this role for dispensaries.

"Dispensaries are neither designed nor equipped to render complete hospital services and they are dependent upon the nearest naval hospital for the care of patients requiring hospitalization beyond the capacity of dispensary care."²²

By December 1944 it was imperative to reduce the heavy patient load in naval hospitals in order to provide more beds for overseas evacuees. Therefore, the Surgeon General recommended that dispensaries whose staffs and facilities were adequate should retain for treatment certain types of patients generally transferred to hospitals. He suggested that medical cases requiring short periods of hospitalization and such surgical procedures as appendectomies, tonsillectomies, and hemorrhoidectomies could be well provided for by dispensaries.²³ The transition from peace to war was complete.

22. The Chief, M&S, to the Vice Chief of Naval Operations, F3-LAS, 12 May 1943.

23. BUMED-WH-ERT, PL6-3/P3(082), Chief of Bureau to all District Medical Officers (Continental Limits), 11 Dec. 1944.

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- B. U. S. Navy Regulations, Articles 1132-1135.

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Supplement to Fourth Quarterly Sanitary Report, 19
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- U. S. Naval Receiving Station, Naval Operating Base (South
Annex) Norfolk, Virginia, Historical Narrative, 18 October
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- U. S. Naval Receiving Station, Washington, D. C., Historical
Supplement to the Fourth Quarterly Sanitary Report, 8
December 1945.

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of 12 May 1943.

Chief of Bureau to all District Medical Officers (Continental
Limits), BuMed-WH-ERT, P16-3/P3(082) of 11 December 1944.

C. Conference Notes

Navy Department Conference of District Medical Officers held
in Bureau of Medicine and Surgery, 11-12 October 1944.

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CHAPTER XII-

MEDICAL SUPPLY

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Early History and Background

To maintain the health of the Navy and care for its sick and injured, it is essential that medical facilities be provided with medical materiel. Without adequate supplies and equipment the best trained of medical staffs would be almost helpless and the most modern of medical plant facilities would be little more than shelter. Simply stated, the medical supply program is that of getting materiel to the proper place at the proper time in accordance with medical necessity. To accomplish this purpose the materiel must be procured, warehoused, packaged, distributed, and shipped to medical units supporting naval operations at home and overseas.

World War II administered a major shock to the existing medical supply organization. Problems inherent in supply were multiplied by the rapidly expanding Navy, the scarcity or complete lack of various critical and strategic materials, the shifting battle front, the lack of shipping space, and the many emergency calls. World War I had presented similar problems, but they were much easier of solution, for at that time the United States had a one-ocean Navy with a strength of 400,000 men, instead of the World War II's many-ocean Navy with a strength of nearly 4,000,000 men. The second world conflict presented a great challenge to an organization which was geared to a peace time basis.

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To understand this challenge to medical supply and how it was met, it is advantageous to review at least briefly the beginnings of naval medical supply, its role in World War I, and the expansion in physical plant in the years 1919-1941. Since it could not be static in a changing world, medical supply was itself in a state of flux from 1941 through 1945. After nine months of war had pointed out certain deficiencies in the system, two surveys were made analyzing the methods of procurement, storage and distribution of supplies, and recommending techniques for overcoming the difficulties. One result of these surveys, administratively, was the creation of the Materiel Division as the thirteenth division in the framework of the Bureau of Medicine and Surgery. New methods of operation within the various depots and storerooms were adopted and amplified, and solutions to war time problems of scarcity were gradually evolved. Finally, to implement and simplify the workings of naval medical supply, personnel were given special indoctrination and training. Moreover, several publications were distributed to all the echelons of medical supply to provide them with information on the latest developments in the field.

Organized medical supply in the United States Navy actually began at the Brooklyn Naval Hospital in 1850.¹ Here, in a second

1. Historical Narrative of the U. S. Naval Medical Supply Depot and Materiel Division, Bureau of Medicine and Surgery, Brooklyn, N. Y., p. 1. Cited hereafter as Historical Narrative, USNMSD, Brooklyn, p. 1.

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floor room, the manufacture of a few of the medicines used in the hospital was initiated. This experiment was so successful that facilities were expanded and medical preparations were manufactured for other hospitals also. Then in 1853 an act of Congress authorized the Navy Department "to erect and equip a laboratory in which medicines should be made for the use of the Medical Department of the Navy". The new laboratory building was set up on the grounds of Brooklyn Naval Hospital and put in charge of Surgeon Benjamin F. Bache, USN, who remained in this post for 18 years.² Painstaking work produced fine quality medicines which were in great demand. Here, too, experiments were first performed in the production of ether by steam heat which was less dangerous than other methods. Past Ass't. Surgeon E. R. Squibb, USN, Dr. Bache's assistant, reported in the American Journal of Pharmacy the apparatus and technique employed.³ By the end of the Civil War the cost of medicines had so far declined that the laboratory ceased making pharmaceutical preparations and concentrated on boat boxes, fracture boxes, medicine chests, and packing cases.

In 1893, a teaching department with a curriculum designed for the instruction of assistant surgeons was added to the Naval Laboratory. At that time the name was changed to Naval Laboratory and Department of Instruction, while the staff embraced the officers

2. Historical Narrative, USNMSD, Brooklyn, p. 1.

3. Ibid., p. 1.

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of the laboratory and members of the Naval Medical Examining Board. Here were conducted the examinations for commissions and promotions in the Naval Medical Corps until 1902, when the Department of Instruction was transferred to Washington and incorporated into the new Naval Medical School.⁴

The modern medical supply establishment dates from 26 May 1905 when the Secretary of the Navy authorized the construction of a new building to be designated as the U. S. Naval Medical Supply Depot.⁵ Completed in 1906 on the grounds of Brooklyn Naval Hospital, the two-story stone block building furnished 37,000 square feet of gross floor space. The single freight elevator had a capacity of 1,500 pounds. Space was utilized as follows: the basement was given over to the storage of empty bottles stamped "Medical Department, U.S.N.", and used for whisky, brandy, wine, and alcohol; the first floor contained a carpenter shop as well as the receiving and shipping departments; the second floor housed laboratories (physical and chemical), issue, packing, and assembly sections; and the attic was reserved for storage. There were three horses and a delivery wagon for handling stores, but since there were no loading platforms, all boxes and crates had to be manhandled.

Medical Supply During World War I

In July 1917, just after the United States' entry into

4. Ibid., p. 2.

5. Historical Narrative, USNMSD, Brooklyn, p. 2.

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World War I, the Naval Medical Supply Depot consisted of a medical inspector, USN, who was the commanding officer, two pharmacists, seven hospital corpsmen, and 13 civil employees who worked as laboratory assistants, bookkeepers, receiving and shipping clerks, carpenters, storekeepers, packers, laborers, and drivers. However, there were no guards or watchmen and so the Depot was locked at the close of each day's work. On 16 August 1918 by an act of Congress the first civil service employees joined the staff.⁶ Each employee formerly classed as a "laborer" or "special laborer" (clerical) who met the requirements was written into civil service or discharged. During 1917-18 packers received \$70 per month; laborers received \$60; both worked from 0800 to 1700 six days a week, except for a half day off during the three summer months. Although overtime pay was unknown, employees worked nights, Sundays, and holidays in emergencies.

By 1918 further expansion had proved necessary and so ground had been broken in January for a new building at the corner of Pearl and Sand Streets, Brooklyn. Partial operation there began in July; total occupancy was effected by 15 October 1918. No longer on the grounds of the hospital, the new Depot was considered admirably located because of its nearness to the Brooklyn and Manhattan Bridges, the Navy Yard, and principal railroad terminals. The building of brick and reinforced concrete covered an area 100 by 100 feet; it was eight stories in height, with each floor possessing 10,000 square

6. Historical Narrative, USNMSD, Brooklyn, p. 9.

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feet of space plus elevator shaft and stairways. The space was allotted as follows: the basement contained the shops and power plant; the first floor had the receiving and shipping departments; the second and third floors held issues and packing; the fourth, fifth, sixth, and seventh floors were devoted to storage; the eighth floor held the offices and laboratories.⁷

Supply problems in a wartime market of scarcity and high prices were not entirely new in World War II. The first World War posed problems, too, as Capt. R. P. Crandall, (MC), USN, then in command at the Naval Medical Supply Depot explained:

During the war, market conditions changed very considerably. Certain preparations such as novocain, eucain, and ichthyol were practically out of the market, while others, such as antipyrine, phenacetine, etc. were for some time prohibitive in price. Accordingly the depot, after experimenting with several preparations, found one that could be substituted for ichthyol, having practically the same properties. Acetanilid was substituted for Pharacetine and antipyrine, etc. Thus it will be seen that while it seemed an easy matter to make out and send in a requisition, it was by no means so easy to fill. The continuous rise in the price and the scarcity of raw material, especially in certain metals, often caused considerable delay in obtaining the finished article.⁸

In spite of difficulties, naval medical supply during World War I was successful as the editorial note appended to Captain Crandall's article attested:

7. Historical Narrative, USNMSD, Brooklyn, pp. 2-3.

8. U. S. Naval Medical Bulletin, Hospital Corps Supplement, vol. 9, April 1919, p. 42.

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At the main depot all these supplies are purchased, tested, and distributed to ships and stations by naval pharmacists. During the war ships containing these supplies were sunk by submarine and torpedo and many difficulties in transportation were encountered, but the depot in a wonderful way lived up to its fine reputation. At no time during the war was the depot short of supplies and at no time did it fail to send supplies promptly to ships before sailing, even on the very shortest notice. At no time was the standard or the quality of the article issued lowered.

Expansion of Supply Facilities 1919 - 1941

By 1919 the facilities were already inadequate and so additional space was leased in four nearby loft buildings until 1920 when 20,000 square feet in the Fleet Supply Base, Brooklyn, was allotted to the Depot. Garage space was rented until 1920 when a three-story garage of brick and reinforced concrete was erected on Pearl Street between Sand and High Streets. In addition to providing for the servicing of transportation equipment it supplied storage space on the second and third floors and in the basement.

The 1920's and early 1930's were a period of relative inactivity, but the President's order for naval expansion in 1938 was a signal for further expansion of the Supply Depot. At that time the Depot Local Board recommended the construction of an eight-story building immediately joining the Depot and of a one-story addition to the garage. By November 1939, as a result of the anticipated demands, it was recommended that the addition to the Depot be a

9. U.S.N.M. Bulletin, Hospital Corps Supplement, vol. 9, April 1919, p. 42.

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duplicate of the original building and be erected just south of it on Pearl Street. It was also recommended that the enlargement to the garage be a duplicate of the original garage and be placed just south of it. By 1940 storage space was so urgently needed that the Depot's space was increased from 20,000 to 44,000 square feet, in the Naval Clothing Factory.¹⁰

With the declaration of a state of national emergency by the President in 1940, the Naval Medical Supply Depot was staffed by 15 officers, 26 enlisted personnel, and 67 civilian workers.¹¹ Still housed in the 1918 building, it had 120,000 square feet of net storage space, was annually shipping 4,962 requisitions totaling 2,835 tons, and was running 8,750 test inspections each year.¹²

In the months that followed expansion of the Medical Supply Depot paced the Navy's personnel rise. To provide for the assembly of Mobile Hospital Number 1, Pier 65, North River, was leased from the city of New York from June through October 1940. In May 1941, Pier 53, North River, was leased from the city of New York for the assembly of additional mobile hospitals, while 60,500 square feet of storage space in the vicinity of the Depot ~~was~~ leased from the Gair Realty Company. By November 1941 the building program at the Depot

10. Historical Narrative, USNMSD, Brooklyn, pp. 3-4.

11. Federal Register, 4 June 1940, gives the President's declaration.

12. Historical Narrative, USNMSD, Brooklyn, chart, p. 10.

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proper had been completed so that both the garage and Depot were twice the size of their original buildings.¹³

Medical Supply - Pearl Harbor to August 1942

The Japanese attack upon Pearl Harbor on 7 December 1941 and the outbreak of World War II presented a major crisis in medical supply. Thinking, which had been geared to plans of caring for accidents, illnesses, and general health, had to be changed to plans for taking care of battle casualties, battle fatigue, neuroses, and various tropical diseases. The ensuing rapid conquest by Japan of the Philippines, the Dutch East Indies, the British ports and naval bases, and the Malay States cut off quinine, tin, and crude rubber from the world market. New concepts, new buildings, and substitutes were now to be considered. The Secretary of the Navy in March 1942 began acquisition of land and buildings of the Corn Products Refining Company in Edgewater, New Jersey, opposite 125th Street, New York City. This property, which covered 26 acres, included several frame and brick buildings in various states of repair, a modern concrete-steel pier 800 feet in length, a power house and limited railroad sidings.¹⁴ The same year the need for more storage space in the immediate vicinity of the Depot resulted in the construction of an eight-story annex directly to the south. By 1943 one-story buildings of cinder block had been erected at Edgewater to complement the

13. Historical Narrative, USNMSD, Brooklyn, pp. 4-6.

14. Ibid.

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existing buildings.

By May 1942 there was a backlog of over 4,000 supply depot requisitions, of which nearly one-half were bottlenecked at stock and shipping floors. A large portion of these requisitions had been in the Depot over thirty days and many had remained unfilled for several months. That something had to be done to facilitate filling of requisitions and so speed up the distribution of medical supplies and equipment was obvious. The Surgeon General on 18 May 1942 authorized the firm of Booz, Fry, Allen, and Hamilton to survey the Brooklyn Medical Supply Depot with a view to introducing more modern business methods. Their survey, completed in August 1942, described the existing organization which provided for four divisions--the Planning Division, the Procurement Division, the Transportation and Traffic Division, and the Special Outfitting Division--to handle the work load.¹⁵

The Planning Division reviewed all requisitions, all specifications developed before their release to the Bureau for procurement, reviewed recommendations and initiated recommendations for changes in the Supply Catalog, developed details for standard commissioning outfits and determined their cost, weight, and cubic foot content, and recommended substitutes for critical materials. Much

15. Booz, Fry, Allen & Hamilton, Survey of Administration, USNMSD, Brooklyn, 14 Aug. 1942, p. 5. Their analysis is shown by the accompanying chart.

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time was employed in interviewing manufacturers. Three naval personnel and one civilian were employed in the Division.¹⁶

The Procurement Division had nine units. The Purchase Section prepared purchase requisitions for the local Navy Purchasing Office or the Bureau of Supplies and Accounts. When an abstract of bids and bid sheets came in, the Purchasing Section decided to whom the contract should be awarded. The ruling factors were low bid, compliance with specifications, and conformity with delivery requirements. Recommendations endorsed by the commanding officer were ordinarily followed by the Navy Purchasing Office. The work was handled by 11 civilians.¹⁷

The Accounting Section handled pricing supply depot requisitions, accumulating values of these requisitions for crediting the depot inventory, doing allotment accounting, compiling maintenance expense and relating it to expense budgets and collecting logistic data in connection with stores disbursement. These functions were divided among the Stock Ledger, the Pricing, the Tabulating, the Accounting, and the Maintenance Units. The last unit included the Multilith Room, a building service activity which printed miscellaneous forms, notices, and form letters and contained a camera, a dark room, and a varitype machine. Eleven civilians and four naval personnel staffed the Section.¹⁸

16. Booz Survey, pp. 6-7.

17. Ibid., pp. 8-10.

18. Ibid., pp. 10-14.

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The Control Section audited public vouchers, reviewed stock procurement requests and estimated dollar valuations, authorized all requisitions before they went to the shipping floor, substituted regularly stocked items for non-listed items ordered on purchase requisitions, reviewed all Division incoming and outgoing mail, and routed it through the divisions.¹⁹

The Statistical Unit, working by means of a "delivery card" prepared for each contractor, followed up and expedited deliveries of material and equipment. The chief report was the "Future Estimated Annual Stock Requirement" for each item of the Supply Catalog on a three year basis. The work was done by 3 pharmacists, 1 chief pharmacist's mate, and 3 civilians.²⁰

The Supply Depot Requisition Unit was essentially a censorship unit which reviewed requisitions to determine what was urgent, to cut down on excessive quantity, and to remove items deleted from the stock catalog. It was operated by a chief pharmacist and one civilian.²¹

The Contract Unit kept files of purchase requisitions which indicated requests to the Navy Purchasing Office for procurement of materials and equipment. A contract jacket was also set up and all correspondence relating to the contract or requisition filed.

19. Booz Survey, p. 15.

20. Ibid., pp. 15-18.

21. Ibid., pp. 18-19.

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Procurement progress cards were kept and invoices were matched with receiving reports and audits. When an invoice had been approved for payment, a public payment voucher was completed and forwarded with the original invoice to the local Navy Disbursing Office. Seven civilians carried on this work.²²

The Correspondence Unit took dictation and handled correspondence for the finance officer and his assistants and typed letters of transmittal. A record including contract number, priority rating, contractor's name and address, value of contract and similar pertinent data for each contract was made for submission to the Army-Navy Munitions Board. Five civilians were employed here.²³

The Stock Control Unit maintained a perpetual inventory of stock on hand as Kardex files. Incoming and outgoing supplies were posted daily. Stock procurement requests submitted to the Control Section, the Specifications Section, and the head of the Procurement Division were originated here. The dates of receipt and shipment of supply depot requisitions for each activity were posted on a control board. This unit was staffed by 1 pharmacist, 1 chief pharmacist's mate, 3 hospital corpsmen, and 11 civilians.²⁴

The Defense Aid Unit received, reviewed, and checked stock

22. Booz Survey, pp. 18-19.

23. Ibid., p. 20.

24. Ibid., pp. 20-22.

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requisitions from the British Admiralty. Reports from this office went to the office of the Lend Lease Administration and the Bureau of Supplies and Accounts. One pharmacist and a civilian accomplished these duties.²⁵

The Inspection Section, composed of a chemical laboratory and a physical and bacteriological laboratory, dealt chiefly with testing and inspecting incoming materials, supplies, and equipment purchased by the Medical Department and the U. S. Veterans' Administration. In performing these tests the laboratories received delivered samples, the receiving record, and the contract folder. Thirty-six people conducted these tests which amounted to 23,764 for the physical and 3,694 for the chemical laboratory in the twelve month period ending 30 June.²⁶

The Specifications Section was a clearing house on all material, supply, and equipment specifications developed by the Depot. It developed rough draft specifications for most medical and surgical apparatus, material and supplies used by the Medical Department, while the X-ray and Physical Therapy Section, and Dental Material Section forwarded like specifications for X-ray, physical therapy, certain medical-surgical apparatus, and all dental material, supplies, and equipment. A specification folder for each item or

25. Booz Survey, pp. 22-23.

26. Ibid., pp. 23-25.

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group of items was used for checking all stock procurement request forms. The personnel involved were 2 officers, 1 hospital corpsman, and 3 civilians.²⁷

The Dental Materials Section handled all technical dental matters for the Depot and prepared the rough draft specifications on dental material, supplies, and equipment for the Specifications Section. It also reviewed and approved dental requisitions from activities and dental survey reports. Two dental officers and one part-time stenographer were responsible for the work.²⁸

The X-ray and Physical Therapy Section's work had been virtually completed by August 1940, because the supplies list had been substantially perfected with six manufacturers furnishing all X-ray and physical therapy machines. This work was done by two officers, two hospital corpsmen, and a civilian secretary.²⁹

The Transportation and Traffic Division was divided into three sections--Receiving, Shipping, and Traffic. The two Navy men and thirty civilians of the Receiving Section accepted incoming shipments and created receiving records on all merchandise reaching the Depot from outside sources. All mail was also received here; first class mail was sent immediately to the office of the Commanding

27. Booz Survey, pp. 25-27.

28. Ibid., p. 27.

29. Ibid., pp. 27-29

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Officer.³⁰

The Shipping Section shipped all merchandise from the Depot to ships and shore stations as well as to and from the Depot and outside storage locations. The work, handled by 2 Navy men and 104 civilians, included assembling and marking the cases, preparing rough bills of lading, weighing and measuring them for cubical content, and transporting them to terminal carload sidings.³¹

The Traffic Section did the clerical work of routing shipments, typing bills of lading, handling correspondence, and compiling statistics and reports in connection with shipping. The personnel included 1 chief pharmacist's mate, 5 enlisted men, and 7 civilians.³²

The Supply Table Issue Section was charged with filling from stock bins, checking, and packing all regular supply catalog items ordered in less than case lots. Special records were made for the issue of microscopes, water stills, manuals of the Medical Department, and for narcotics and precious metals which were stored here under lock and key. Thirteen Navy men and 49 civilians operated the Section.³³

The Assembly and Salvage Section maintained and issued items

30. Ibid., pp. 29-30.

31. Booz Survey, p. 30.

32. Ibid., pp. 30-31.

33. Ibid., pp. 31-32.

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not listed in the Supply Catalog such as experimental stage or special items. It assembled certain odd items for medical and dental units and first-aid kits and issued biologicals. Another important duty was the receiving, inspection, reconditioning or disposal of items returned from ships and shore stations. The work was carried on by 5 Navy men and 17 civilians.³⁴

The Storage Section accepted new merchandise from the Receiving Section and returned goods fit for reissue from the Assembly and Salvage Section. The 3 Navy men and 64 civilians kept a perpetual inventory of quantities on hand.³⁵

The Plant Upkeep Section included the Building Maintenance Unit and Vehicle Unit. The Building Maintenance Unit covered minor construction and repairs to the building and equipment including painting, plumbing, electrical and machine shop work. Its twenty civilian employees operated the boiler room and built and repaired the wooden packing cases.³⁶

The Vehicle Unit, composed of three civilians, was responsible for all repairs, maintenance, and service work on the motorized fleet of 10 trucks, 3 station wagons, and 3 sedans.³⁷

34. Booz Survey, pp. 32-33.

35. Ibid., p. 33.

36. Ibid., p. 34.

37. Ibid., p. 34.

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The Physical Examination and Treatment Section conducted examinations for individuals seeking reenlistment in the Navy and naval personnel being transferred from the Depot, applying for government life insurance policies, or requiring examination for special reasons. First aid, minor treatments and immunizations were given; a small dispensary was maintained. The executive officer of the Depot, assisted by a full-time pharmacist's mate, carried on this work.³⁸

The Personnel Section included three units--Personnel Records, Building Security, and Building Service.

The Personnel Records Unit kept all personnel records (naval and civilian) as well as timekeeping and payroll records and reports. One officer, two enlisted men, and three civilians were employed in this Unit.³⁹

The Building Security Unit was charged with the security of the three Depot buildings at Pearl and Sand Streets and the Edgewater warehouse. The duty covered guard and watchman service, chemical warfare, bomb, and fire protection. There were 16 civilian guards at the Depot and 11 at the annex; building superintendents provided security in the other three warehouses.⁴⁰

38. Booz Survey, p. 35.

39. Ibid., pp. 35-36.

40. Ibid., pp. 36.

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The Building Service Unit afforded elevator, janitor, and messenger service for the Depot. The group, all civilians, included 4 elevator operators, 7 janitors, and 3 messengers.⁴¹

The Special Outfitting Division of three officers was organized to plan and direct the work of establishing mobile hospitals.⁴²

Administrative Surveys of Medical Supply

The Booz Surveys suggested that the Brooklyn Medical Supply Depot as constituted was not well organized and that the functions of the Supply Depot and the Bureau of Medicine and Surgery were not well coordinated.⁴³ It pointed out that various procurement of material, planning, and accounting activities was handled by both, with resulting duplication. An example was the then current procedure in the case of purchase requisitions. Ninety percent of them were placed with the Navy Purchasing Office in New York. The Supply Depot sent the remainder to the Bureau where they were reviewed, recorded, approved, and forwarded to the Bureau of Supplies and Accounts. Sixty percent were returned to New York or sent to San Francisco for placement with purchasing offices in these cities; for the remaining forty percent handled by the Bureau of Supplies and Accounts, bids were submitted to the Bureau of Medicine and Surgery

41. Booz Survey, pp. 36-37.

42. Ibid., pp. 37-38.

43. Booz Survey of Administration, Bureau M&S of 25 July 1942.

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and then to the Supply Depot for recommendations of award. Then the system reversed from the Depot to BuMed and BuSAND. The report recommended that since the Depot already handled 90 percent of the requisitions, all requisitions should be handled locally.

Another duplication was that requisitions for non-listed items and exceptionally large quantities cleared through the Bureau of Medicine and Surgery first. In addition, ships and stations continued to send general requisitions to the Bureau rather than to the supply depots to the number of 3,926 in the first four months of 1942. Since such procedure caused from two days' to a week's delay, it was recommended that all requisitions from ships and stations be sent directly to the supply depots.

The work at the Depot naturally divided into three functions--procurement of material, operating, and accounting. No sharp delineation of responsibility existed and so procurement in its various phases was handled by the Planning, the Procurement, and the Special Outfitting Divisions, the Inspection, Specification, Dental Material and X-ray and Physical Therapy Sections. Operation was divided between the Transportation and Traffic Division; the X-ray and Physical Therapy, the Inspection, the Supply Table Issue, the Assembly and Salvage, the Storage, the Plant Upkeep, and the Personnel Sections.⁴⁴

⁴⁴. Booz Survey, pp. 42-43.

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In order to effectuate better operation of the Supply Depot itself, the Booz experts recommended a new organizational setup. Based on the analysis that the Depot had three tasks to perform, it was proposed to establish three divisions: (1) the Procurement Division to buy and arrange for the receipt of supplies and equipment, (2) the Operating Division to handle the stock from time of receipt to time of shipment, and (3) the Accounting Division to maintain records of receipts and disbursements.⁴⁵ The entire proposed organization including the sections and units under the divisions is shown on the accompanying chart. In all there were 88 recommendations (see appendix). The medical officer in command, NMMSD, Brooklyn, reported to the Chief, Bureau of Medicine and Surgery on 8 October 1942, that 26 of these recommendations were in effect; 51 were in process; while 11 were considered to be either impractical or at variance with fundamental policy.⁴⁶ On 30 April 1943, the Chief, M&S, reported to SecNav the financial advantage of the adoption of these recommendations, which he estimated at \$15,800 per annum.⁴⁷

In the period between these two reports a further revision in the medical supply system had come with the establishment of the Naval Medical Material Board on 12 December 1942. Its duties as stated

45. Booz Survey, pp. 50-51.

46. A3-4/EN(073-40), 8 Oct. 1942.

47. A3-4/EN(073-40), 30 Apr. 1943.

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were "to examine and pass upon such new drugs, chemicals, inventions and devices, related to medical, surgical, dental, hospital, and field equipment and supplies as may be brought before the Board. The Board shall have performed such tests, analyses, studies and trials as may be required to arrive at a sound basis of judgment regarding the suitability of the materials under investigation for use by the Medical Department of the Navy". The medical officer in command, NMSD, Brooklyn, was made chairman of the Board, which was required to consult with all divisions of the Bureau concerned with supplies and equipment.⁴⁸

Meanwhile management studies in the office of the Special Assistant to the Surgeon General resulted in his memorandum of 27 March 1943 regarding "confusion as to cognizance in the field of material procurement and supplies".⁴⁹ It was further remarked that there was duplication, because Planning, Finance, and NMSD did not understand their functions or their relationships. The solution offered was the creation of a Director of Supply Activities who should have all matters connected with medical supply under him. Two divisions, a Supply Division synonymous with NMSD, Brooklyn, and a Procurement Coordination Division in Washington to handle priorities, allocations, resources, etc., were to be set up.

48. NT4-2 (J9122) Chief M&S letter.

49. A3-4/EN(073-40) 27 Mar. 1943.

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As a result of this memorandum, the Surgeon General authorized his special assistant to continue the study with a view to solution of the problem. On 12 August 1943 when the Office of the Management Engineer was asked to help with the survey, two men were so assigned. The resultant organizational study was presented to the Surgeon General on 30 October 1943.⁵⁰

The body of this report classified all functions, as had the original memorandum, as planning, finance, or supply and recommended the establishment of the thirteenth division of BuMed to be known as the Materiel Division.

It was concluded that the Planning Division should: (1) study and relate war plans and all other pertinent information to Medical Department functions; (2) determine Medical Department programs on such a basis; (3) make recommendations for carrying out these programs; (4) secure, evaluate, record, and disseminate such information from O.N.I. and other sources as will help in execution of naval plans, operations, and interests; (5) receive, index, and file all secret and confidential matter addressed to the Bureau of Medicine and Surgery and deliver to other divisions and offices for their information and action such matter as is pertinent to their responsibilities; (6) clear, index, file, and deliver to the mail room all secret and confidential matter to be delivered outside the

50. Letter of transmittal, Special Assistant to Surgeon General, Lt. Comdr. Arnold F. Emch, H-V(S), USNR.

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Bureau of Medicine and Surgery; (7) maintain records pertaining to general patient traffic and hospital bed occupancy with a view to recommending proper integration of facilities and determination of needs; (8) investigate, review, and make recommendations on all real estate possibilities for Medical Department requirements ashore; and (9) investigate, review, and make recommendations pertaining to size, location, layout, and design of Medical Department spaces afloat and ashore. It should include a War Plans Branch and a Design and Construction Branch.⁵¹

It was proposed that the Finance Division should: (a) prepare the total annual Medical Department budget, coordinate the processing of annual requests from all activities for allotments of appropriational funds from this budget, and establish and maintain budgetary controls over expenditures of appropriational funds; (b) censor requests for appropriational allotments and purchase requisitions for maintenance materials and services; (c) plan a continuing program for repair of Medical Department facilities and estimate financial requirements for this repair program and the Medical Department program for new construction; (d) prescribe accounting systems for the control of Medical Department funds, property, and costs; (e) audit all receipts and expenditures of Medical Department property and maintain records of values and descriptions of plant

51. Survey of Medical Supply Activities, Medical Dep't., U. S. Navy, 30 Oct., 1943 (Ench Survey), pp. 49, 51-53.

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facilities, equipment, and supplies. The Division should include two branches, a Budget Branch and an Auditing Branch.⁵²

The proposed Medical Materiel Division should: (a) establish basic policies governing the Medical Department supply activities; (b) develop specific supply programs in support of naval operating plans; (c) determine levels of medical stores to be carried in ships, hospitals, and other shore stations, and in depots and storehouses; (d) determine over-all requirements of medical material for such programs; (e) prepare detailed estimates of requirements for specific items and classes of medical material; (f) authorize requirements of individual activities for medical material through censorship of requisitions and annual and supplemental budget requests; (g) initiate procurement of medical material; (h) make recommendations to the Naval Medical Materiel Board of items to be added to or deleted from the Supply Catalog; (i) develop commissioning outfits for ships and shore stations and prepare allowance lists of outfits for advance bases; (j) develop general programs for and with the advice of the Post-War Planning Board for rehabilitation and redistribution of surplus medical material; (k) develop and revise Bureau of Medicine and Surgery INT specifications for medical material and present recommendations that such specifications be adopted as Navy and Federal specifications; (l) execute purchasing details in connection with procurement of medical material; (m) inspect receipts of medical

52. Ibid., pp. 53-57.

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material; (n) operate physical, chemical, and biological laboratories; (o) maintain the unit stores controls essential to efficient distribution of medical stores; (q) develop policies and methods for stowage, assembly, issue, shipping, and salvage of medical material; (r) maintain ledger records of expenditures and obligations of Medical Department appropriation allotments for purchases of medical material; (s) maintain ledger records of receipts and issues of medical material by the medical supply depots and storerooms; and (t) perform the administrative and maintenance duties required for its own operation.⁵³

It was further advised that the Medical Materiel Division should consist of five branches and two staff offices: Requirements, Procurement, Stores Control and Warehousing, Accounting, and Administrative Branches, a Washington office, and the Office of the Dental Adviser.

Establishment of the Materiel Division
of the
Bureau of Medicine and Surgery

The culmination of these various surveys was the establishment on 10 November 1943 of the Materiel Division of the Bureau of Medicine and Surgery.⁵⁴ Following very closely the recommendation of the survey of the Special Assistant to the Surgeon General and the

53. Emch Survey, pp. 57-66.

54. A3-4/EN(073-40) of 10 Nov. 1943.

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Office of the Management Engineer, the Materiel Division was directed to: (a) establish basic policies on the Medical Department's materiel activities; (b) develop specific materiel and repair programs in support of naval operating plans; (c) determine the level of stores to be maintained; (d) determine over-all requirements for individual activities; (e) authorize requirements for individual activities; (f) initiate procurement of materiel and services; (g) make recommendations to Naval Medical Materiel Board as to items to be added to or deleted from the Medical Department Supply Catalog; (h) develop commissioning outfits; (i) develop specifications; (j) execute procurement details as necessary; (k) maintain inspection standards and operate the necessary laboratories; (l) develop policies and methods for stowage, assembly, issue, distribution, and salvage of stores; (m) maintain general and stock ledgers; and (n) perform administrative and maintenance duties required for its own operation.

In order to accomplish these duties two offices and five branches were set up. The office of the Chief of the Division was made responsible for all functions assigned to the Division, but was instructed not to adopt major policies without the approval of the Chief, BuMed.⁵⁵

The Requirements Branch had two sections. The Monitor Sections, each of which handled different classes of materials, were

55. A3-4/EN(073-40) of 10 Nov. 1943.

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details when requested by the Requirements Branch; (b) maintain a file of previous bidders; (c) prepare purchase requisitions and transmit them to appropriate agencies; (d) tabulate bids; (e) obtain recommendations of award from the Requirements Branch and advise appropriate agencies of awards; and (f) maintain liaison with other government agencies and manufacturers on distribution of contracts and expediting delivery. The Inspection Section was assigned to (a) verify quantity, condition and marking of incoming materiel; (b) make tests to ascertain that contract specifications have been met; and (c) maintain the necessary laboratories.

The Stores Control and Warehousing Branch's three sections were the Unit Stores Control Section, the Stores Location Control Section, and the Warehousing Section. The Unit Stores Control Section was instructed to (a) develop and maintain records of receipts, issues, balances on hand and outstanding purchase requests of materiel from supply depots and storehouses; (b) reconcile periodically book balances of stores on hand with physical inventories; and (c) furnish data from its records to the Requirements Branch as needed. The Stores Location Section was to (a) forecast withdrawal of stores according to geographic location of the requisitioning activities; (b) estimate maximum and minimum quantities of stores in supply depots and storehouses to meet these estimated needs; (c) determine to which depot or storehouse each shipment should be routed; (d) determine the depot or storehouse from which each activity's request should be filled; (e) control the flow of shipments to an issues

to: (a) assist the Chief and Assistant Chief in establishing basic materiel policies; (b) prepare detailed estimates for existing facilities; (c) censor requests of field activities; (d) censor, prior to issue, specific and annual requisitions; (e) determine time and quantity of purchases as indicated by over-all procurement policy and rate of issue; (f) recommend to the Naval Medical Material Board items to be added to stock catalog; (g) develop and devise clearance lists and commissioning outfits; (h) initiate changes in requirements to conserve critical materials. The Reports and Allocations Section was to provide all the statistical assistance needed by the Monitor Sections by (a) obtaining from cognizant monitors and preparing in report form all data relative to Medical Department requirements; (b) converting unit requirements into dollar requirements; (c) developing logistic data relative to issue and use of materiel and services; (d) censoring dollar totals of budget requests from field activities and (e) estimating allotment requirements for ships and small stations from previous experience.

The Procurement Branch consists of a Specifications Section, a Purchase Section, and an Inspection Section. The Specifications Section was set up to (a) determine materiel specifications to be included in all bids and contracts; (b) develop and modify specifications as necessary; (c) ascertain that all specifications on bids and contracts are in compliance with government regulations and (d) maintain liaison regarding specifications with all other offices, bureaus, etc. The Purchase Section was to (a) carry out purchasing

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from each depot and storehouse to get the best possible use of cubic capacity; (f) order redistribution of stores to maintain desired stock levels; (g) recommend redistribution of stores from abolished activities or those with excessive inventories. The Warehousing Section was to (a) develop policies and methods for stowage, assembly, issue, salvage, and distribution of materiel; (b) put these policies into effect in various depots, and storehouses; and (c) advise depots and storehouses in such matters.

The Accounting Branch continued the pattern with a Contracts and Vouchers Section, a Stores Ledger Section and a General Ledger Section. The Contracts and Vouchers Section was to (a) maintain records of contracts for purchases of materiel; (b) verify contract values; (c) check contractors' invoices against contracts and receiving records; (d) prepare public vouchers for payment of such invoices. The Stores Ledger Section was to (a) maintain ledger records of receipts and issues of materiel; (b) calculate average cost of each item of stores; (c) price and extend invoices. The General Ledger Section was to (a) maintain records of all appropriational allotment obligations and expenditures for materiel; (b) maintain ledger records of issues broken down by classes of activities and classes of materiel; (c) maintain property accounts covering materiel in depots and supply houses; (d) prepare records of average annual issues of each Supply Catalog item to each type of activity; (e) prepare, as required, financial, property, and usage reports desired from its records.

The Administrative Branch was also divided into three sections--Personnel, Mail and Files, and Maintenance. The Personnel Section was charged with (a) the general administration of civilian personnel including appointments, placements, classification, training, payrolls, and efficiency ratings; (b) such administrative duties as required in connection with naval personnel. The Mail and Files Section was to (a) receive, index, and file all matter addressed to the Division; (b) deliver such matter to the branches and offices having cognizance; (c) clear, index, file, and mail all matter to be delivered outside of the Bureau. The Maintenance Section was assigned (a) the operation and upkeep of mechanical equipment and machinery, and (b) the protection of personnel and property.

The Washington office was established to (a) coordinate functions of the Materiel Division with those of other divisions of BuMed and (b) represent the Division in necessary personal contacts with the Chief, M&S, and other divisions, bureaus, offices, etc.

Thus, by 10 November 1943, the Naval Medical Supply picture had changed. The following charts indicate: (1) The Materiel Division and (2) the Materiel Division's relation to the other divisions of the Bureau of Medicine and Surgery. The letter of 10 November 1943 also created the Chief of the Materiel Division who was to continue to serve as medical officer in command of the Naval Medical Supply Depot, Brooklyn, and an assistant chief who was to continue

to serve as executive officer of NMSD, Brooklyn.⁵⁶

Work of the Supply Depots and Supply Storehouses

Throughout the Continental United States

Although the new Materiel Division was located at Brooklyn, the Naval Medical Supply Depot at Brooklyn was only one of a chain of depots and storehouses that served the Navy around the world.⁵⁷ The continental picture included NMSD, Brooklyn, which controlled the Naval Medical Supply Storehouses at Newport, Norfolk, Charleston and New Orleans, and the medical section of the Naval Supply Depot at Mechanicsburg and NMSD, Oakland, which controlled the Naval Medical Supply Storehouses at Seattle, San Pedro, and San Diego and the medical sections of the Naval Supply Depots at Clearfield and Spokane. The depots carried complete catalog stocks; the storehouses carried a stock of medical stores limited to expendable items and minor non-expendable items.⁵⁸

The development of the Naval Medical Supply Depot has been indicated in the discussion of NMSD, Brooklyn; the development of a continental medical supply storehouse may be shown more clearly

56. A3-4/EN(073-40) of 10 Nov. 1943.

57. Chief, BuMed to all Ships and Stations TL8-2(072), 14 June 1944.

58. See appendix A for charts 1, 2, 3 illustrating the typical medical supply depot and storehouse internal organization as well as the position of a medical storehouse in the BuMed Naval District pattern as exemplified by the First Naval District's medical supply system.

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by brief reference to the story of the San Diego Storehouse. Commissioned in July 1942, it occupied a building with a storage capacity of 38,870 cubic feet. Four electrical refrigeration units provided storage for biologicals. All Medical Department linen was stored and issued here. In 1942, \$56,258.99 was expended for medical supplies; by the first ten months of 1945, \$144,931.05 was expended for medical supplies. This sharp rise was due chiefly to the purchase of optical supplies and penicillin.⁵⁹

The work of the medical section of a naval supply depot could be envisioned from the story of Mechanicsburg. The Medical Stores Section and the Advance Base Section of the Medical Department here played a vital part throughout the war. These sections have manufactured numerous field units, processed several fleet hospitals and G-components for forward movement, provided commissioning outfits for many ships, and filled requisitions from various ships and stations.⁶⁰

Certain mechanical processes and plans were necessary within the supply depots and storehouses in order to carry out their mission most efficiently. The best discussion of these measures once more was supplied by NISD, Brooklyn, where most of

59. NM5/A9-4/P2-4, Historical Supplement to Fourth Quarterly Sanitary Report, Cumulative Report for Period of World War II, USNTC, San Diego.

60. MT4-46/A9-3, Historical Supplement to Fourth Quarterly Sanitary Report, Naval Supply Depot, Mechanicsburg.

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the ideas originated.

Reviewing and editing requisitions has been necessary to insure rationing of critical items to the best advantage of all, the reduction of obviously excessive amounts, the deletion of items unsuitable for the purpose intended, deletion of items not ordinarily supplied to the activity, the deletion of items supplied by another bureau, the correction of errors in stock numbers, etc., and the explanation of modification of a requisition. Originally this was done by the medical officer in command, NMSD, Brooklyn, except for dental items; the assignment of a medical officer to this specific task came with the increase in volume. Next the work was turned over to monitors, each of whom was responsible for items in a specific class or classes. With the decentralization of the medical supply system in November 1943, only requisitions from the territory served by NMSD, Brooklyn, were handled except in the case of non-listed items. By May 1945, reviewing of standard items was transferred from Monitors Section, Materiel Division, to a special section of NMSD, Brooklyn; reviewing on non-listed items was not transferred.⁶¹

When a requisition reached a supply depot, it was handled as shown on the accompanying chart.

The storage control, handling and stowage methods of USNMSD, Brooklyn, depended upon lift trucks and pallets adopted as the answer

61. Historical Narrative, NMSD, Brooklyn, pp. 50-51.

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to several problems such as nonadaptability of available space to standard mechanical handling equipment, inadequate elevator capacity for handling standard weight equipment, delivery delay of six months on equipment, and floor space at a premium. Therefore, the Depot installed a number of low lift battery-powered pallet type moto-trucks which accomplished speedier movement and saving in power from horizontal movement. In order to utilize wasted overhead space, a tiering moto-truck was adopted as standard equipment as the best link in the tractor-trailer-pallet-lift truck system of material handling on the pier and in warehouses.⁶² Although this truck had been in use for one and a half years, its use had been confined to fairly ideal conditions and it had been serviced and repaired only by highly skilled mechanics. However, unskilled laborers had done the actual operation; many tons of material had been moved; cost and repair expenses had been negligible, and their performance had always been adequate.

Although some larger items of equipment did not fit, the 36 x 36 inch pallet had been adopted as standard.⁶³ Advantages of

62. This moto-truck had the following characteristics:

1. 35" in width
2. 2,000 lb. lifting capacity at $10\frac{1}{2}'$ per minute
3. 5'2" in over-all length, including the forks
4. Lifts to a height of 5'6"
5. capable of right angle tiering in $5\frac{1}{2}'$ aisles
6. has standard safety devices

63. Its specifications included hard wood of standard grades, sound lumber, runners of 2 x 4 x 36 inch lumber, spaced twenty-six inches apart and made of number one common lumber, top and bottom boards of $\frac{7}{8}$ inch thickness, and chisel pointed high carbon screw nails.

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this type pallet were that it could be handled by standard fork trucks; it was suitable for use in narrow aisles and doorways; weighing only 45 lbs., it could be moved by one man; and in eighteen months' use there had been less than 500 broken boards.⁶⁴

A report on medical supply storage facilities on the West Coast in November 1943 offered both specific and general recommendations.⁶⁵ At this time NMSD, Oakland, was occupying only fifty percent of its storage space. It was recommended that key personnel be exchanged between NMSD, Brooklyn, and NMSD, Oakland. NMSS, Seattle, was using ninety-seven percent of its space, but was to receive thirty thousand additional square feet in order to permit an increase in amount and variety of stock. It was suggested that the quantity and variety of items carried in stock by NMSS, San Diego, be increased. NMSS, San Pedro, could store twice as much material as it had on hand. The medical section of Clearfield Naval Supply Depot needed trucks, etc., for handling material. It was also recommended that exchange personnel between Brooklyn and Oakland stop two days at Clearfield. The medical section of Spokane Naval Supply Depot, although utilizing only fifteen percent of the available space, expected to have all of it in use by March 1944. The general recommendations were (1) that all supply storehouses be expanded to

64. US Navy Medical Supply News Letter, 10 Apr. 1942, Issue 2-43.

65. Letter Chief of Materiel Division to Chief, Bureau of Medicine and Surgery, NT-4/L5-3 (14).

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enable them to supply maximum issues to all activities in the area, (2) that the items and stock carried by Oakland be increased so that it stocked all items in the Supply Catalog, (3) that facilities of both Brooklyn and Oakland be pushed to maximum capacity to make replenishment issues.

In 1917 chemical and physical laboratories had been set up at Brooklyn to test all drugs, hospital supplies, and equipment for quality, durability, workmanship, physical properties, and correct labeling.⁶⁶ The work of these laboratories had been invaluable in avoiding acceptance of faulty or dangerous materials as well as in deciding upon the suitability of new and substitute materials, instruments, and devices. Suggested improvements in the design of dental and surgical instruments and operating gowns and in packaging have been beneficial to the Navy. Textiles, for example, were tested for color fastness, tensile strength, resistance to weather and rot, weaving, and conformity to specifications.⁶⁷ Captured enemy supplies and equipment were carefully examined for new developments or ideas advantageous to the Medical Department. A final use of the laboratories was for testing samples of materials reported faulty by activities receiving them. If design or quality were defective, changes were made; if misuse or mishandling had been at fault,

66. Historical Narrative, NMSD, Brooklyn, pp. 12,14.

67. L5-2(8) NTH-2/A13-7/(SLS-Mht) - Report of Research Conducted on Substitute for Rubber Sheeting. See appendix B.

suggestions were made for proper use or handling.

Close cooperation has been maintained with the Army Medical Procurement Office in interchanging test data. This has been to mutual advantage in substantiating testing procedure and results and in preventing rejected materials' being shunted back and forth between Army and Navy.

Wartime Supply Problems

Immediately upon the outbreak of war, conservation of and substitution for strategic and critical materials became necessary. A listing of such materials was referred to BuMed by CNO on 7 January 1942.⁶⁸ BuMed on 20 March 1942, requested that all Medical Department activities exercise greatest care in the conservation of machinery, equipment, and appliances.⁶⁹

One very serious problem arose when the Japanese advance cut off the crude rubber supply. When on 13 May 1942 the Chief of the Office of Procurement and Material wrote to the various bureaus suggesting that WPB forbid the use of latex, crude rubber, and reclaimed rubber in articles for the Navy, the Chief, M&S, referred the letter to the medical officer in command, USNMED, Brooklyn, for comment.⁷⁰ On 21 May the answer came requesting an exception in the

68. Memorandum, Office Ch of Naval Operations to Bureau of Medicine and Surgery, A16-1/JJ(053-40), 7 Jan. 1942.

69. BuMed Circular Letter 35 L8-2/JJ(03) of 20 March 1942.

70. L-8-2/JJ33(052-42) of 19 May 1942.

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case of molded wheels and casters which were necessary to avoid static electricity and prevent explosion. On 23 May the Chief, M&S, protested to the Chief, OP&M, on the proposed orders on conservation of rubber insofar as they concerned items directly and indirectly concerned with the care and treatment of the sick. He argued that rubber was imperative for conductive wheels and casters and for bands for reducing jaw fractures, and that the acceptance of butadiene, vinyl polymers, etc., was dependent upon its as yet unproved ability to make satisfactory seals and closures. Continued tests resulted in the conclusion that polyvinyl chlorides and butadiene were acceptable substitutes for rubber sheeting, but since they could not be vulcanized, they were not acceptable for hot water bags, pillow cases, etc. On 10 August 1942, the Chief, M&S, informed the Chief, BuShips, that latex was vital in packaging human serum albumin used in blood transfusions.⁷¹ As a result of continued experiment, by 20 October 1943, the medical officer in charge, USNMSD, Brooklyn, was able to report to the Chief, M&S, that all drug sundries and flat goods procured by the Depot--except rubber tubing for intravenous use and surgeons' gloves--were fabricated of synthetic rubber.⁷² On 8 November 1943, the Chief, M&S, informed the medical officer in charge, USNMSD, Brooklyn, that the Bureau temporarily had secured crude and latex rubber for surgical finger cots, operating gloves, X-ray aprons and

71. Chief, M&S, to Chief, BuShips, L8-2/JJ33(052-42) of 10 Aug. 1942.

72. Chief, M&S, to MO in C, NMSD, Brooklyn, L8-2/JJ33(052-42) of 20 Oct. 1942.

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gloves, and surgical rubber tubing.⁷³

The shortage of tin led to the use of tubes compounded of seven and one-half percent tin and ninety-two and one-half percent lead. An immediate problem arose, because tannic acid in such tubes absorbed enough of the lead to render the ointment dangerous to the patient. The Chief, M&S, recorded this fact in his weekly report on production of critical items 18 May 1942, with the request that tin be made available for tubes. The explanation was offered that gelatin tubes were not acceptable because the tannic acid dissolved the gelatin; metal boxes and jars were not acceptable because they were too heavy and did not fit into first-aid kits. The request was made for the release of twenty-two thousand pounds of tin for three hundred and sixty thousand tubes. This was done on 25 May 1942.⁷⁴

A third vital commodity shut off from world markets by Japanese control in the Far East was quinine, considered essential in the treatment of malaria. On 30 March 1942, the Winthrop Chemical Company declared that (with atabrine, a synthetic chemical discovered in Germany) it was able to meet the United States' demands for a drug to combat malaria. On 13 May 1942, the medical officer in charge, NMSD, Brooklyn, recommended an effort to increase production

73. Chief, M&S, to MO in C, NMSD, Brooklyn, L8-2/JJ33(052-42) of 8 Nov. 1943.

74. Weekly Report, Production of Critical Items, Chief, M&S, to Chief, OP&M, of 18 May 1942.

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of atabrine; 18 May 1942, the Acting Chief, M&S, recommended increased production of atabrine and aminaquin.⁷⁵

On 23 July 1942, the Chief, M&S, asked all shore stations to submit an inventory of quantity of quinine products on hand. In October 1942, the Philadelphia College of Pharmacy and Science appealed to all pharmacists for donations of rarely used cinchona alkaloid salts or any surplus stock of quinine, quinidine, cinchonine, and their salts. They had been appointed by WPB to make this collection and had agreed to identify, pool, and assay all materials and certify them to the Defense Supplies Corporation. On 30 November 1942, SecNav released a basegram declaring conservation of quinine an absolute necessity and ordering that atabrine be used for anti-malarial prophylaxis except where it was ineffective or not tolerated. Also on 30 November 1942, the Surgeon General asked WPB for 1,536,984 ounces of quinine hydrochloride, but agreed on 9 December 1942 to accept quinine sulfate to avoid loss in conversion. On 29 December 1942, the Surgeon General appealed to the American Pharmaceutical Association to place the need for quinine and the establishment of a quinine pool before the pharmacists of the nation. On 27 January 1943, the Acting Surgeon General asked the medical officer in charge of NMSD, Brooklyn, for an accurate statement of the amount of quinine to be requested from the Treasury stockpile. Then on 6 February 1943, the Surgeon General asked WPB for 1,283,600 ounces of quinine sulfate from the government stockpile on the basis of the 1942 rate

75. L8-2/JJ57(042-42).

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and amount of issue, the planned increase in personnel, new ships to be commissioned, and hospitals being assembled. The Surgeon General, on 21 November 1942, wrote to NMED, Brooklyn, recommending the deferment of totaquina procurement because WPB had allocated all quinine to the armed forces and all totaquina to civilian anti-malarials. On 20 May 1943, the Surgeon General congratulated the American Pharmaceutical Association and the druggists and pharmacists for their contribution of over 100,000 ounces of quinine and other cinchona alkaloids to the National Quinine Pool. By 17 August 1943, the Surgeon General recommended to OP&M that only 10 percent of the supply of anti-malarials be quinine and that the balance be atabrine. On 5 November 1943, Conservation Order M-131 forbade the use, delivery, or acceptance of delivery of cinchona bary or alkaloids by any one other than Defense Supplies Corporation or any other corporation organized under section D of RFC Act without authorization by WPB.⁷⁶ The Army, Navy, Maritime Commission, and War Shipping Administration could order such supplies, but the supplier was to describe the order to WPB and await authorization. On 7 September 1944, the Surgeon General wrote to a Dr. Paul Seabra, who had developed a colloidal quinine called Brasilan, that the shortage of quinine was not too serious because atabrine was quite superior to it. By 31 January 1945, the Chief of the Materiel Division thought that a relaxation of restriction on quinine salts was possible; the

76. Federal Register, vol. 8, pp. 15247-15249, Form NJ A241.

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Chief of the Professional Division, however, considered such a step unwise. On 3 April 1945, the Surgeon General reported to OP&M that the Navy needed no quinine for the second quarter. By 21 August 1945 the Surgeon General was able to tell the Chief of OP&M that the Navy could reduce its atabrine needs for the balance of the year by 120,000 bottles of 1,000 tablets each.

A supply problem of another sort arose with the development of new therapeutic agents such as penicillin.⁷⁷ During July 1943 the total amount of penicillin received by NMSD, Brooklyn, was only 920 ampules of 100,000 Oxford units each, and so equitable distribution was difficult. Almost all the early shipments were to naval hospitals with monthly automatic shipments to the overseas hospitals in amounts designated by the Research Division, BuMed. During these early days frantic requests by civilians for the seeming miracle-worker were frequent because the entire production was allotted to the armed forces. This situation was alleviated by WPB's releasing a limited supply for civilian needs under the charge of Dr. Chester Keefer of Boston. By February 1944 production had increased so that control by the Research Division was withdrawn and any activity could order penicillin by regular requisition or dispatch. However, a statement of urgency, which was carefully considered by the control officer and the monitor of class S1 items in terms of need and the current stock, had to be attached. With this increased production,

77. Historical Narrative, NMSD, Brooklyn, pp. 48-49.

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stocks were set up at other depots as well as at Brooklyn and overseas storerooms. Another initial difficulty was the short dating period of three months with the resultant question of survey due to expiration of potency. When a more highly purified penicillin became available, a gradual lengthening of the dating period was permitted until the Food and Drug Administration allowed most manufacturers to use an eighteen months' dating period. When stock was on hand for all reasonable needs, large amounts were sent to forward areas for combatant use. By July 1945 production had grown to 300,000 of the 200,000 unit vials per month while the cost had dropped to one dollar per 200,000 units as compared to the original eighteen dollars per 100,000 units.

Two major programs, optical repair and spectacle supply, established during the war became charges of the Medical Supply Depot, Brooklyn, and the Materiel Division. These developments were necessitated by two changes within the Navy: (1) the expansion of the Navy had resulted in the lowering of visual standards to the point that many men who wore glasses were being inducted and (2) numbers of Navy and Marine Corps personnel were being sent to areas in the Pacific where civilian sources of supply were nonexistent. The Navy had been authorized by the Naval Appropriations Act of 1942 (under Appropriation, Medical Department) to issue glasses at government expense to Navy, Marine, and Coast Guard personnel beyond the continental limits of the United States. In order to furnish glasses, repairs, and replacements to personnel in remote places, it would be

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necessary for the Navy to establish its own optical shops.⁷⁸

In formulating the plans it was decided that two types of units would be used: (1) a base type designed for semi-permanent operation would carry complete equipment for everything except lens surface grinding and would be established at all new large advance bases and (2) a mobile type designed for operation in forward areas and for quick and easy movement would carry only limited equipment. The first units were organized in 1943; the first three in service were base units in the Pacific. The experience of these units was helpful in 1944 planning, which included an increase in basic stock for base units because of heavy demands and delays in replenishments and redesign of mobile units which were not moving around so frequently as anticipated, and their limited stock and equipment had proved disadvantageous. The demand on shore based units remained consistent at 400 to 450 complete pairs of glasses and 100 to 150 repair jobs per month for base units and about half that for mobile units wherever they were located. The demand for optical service aboard hospital ships was noticeably inconsistent.⁷⁹

As greater numbers of men were inducted into the naval service, the number of complicated visual errors increased appreciably. The optical units then began to receive prescriptions calling for much

78. Historical Narrative, NMSD, Brooklyn, pp. 36-39.

79. U. S. Navy Medical Supply News Letter of 1 October 1945, Issue No. 10-45.

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stronger lenses than they carried in uncut stock. To correct this, approval was obtained in April 1945 for the establishment of two lens grinding plants in the Western Pacific. These plants carried complete surface grinding and polishing equipment and an initial stock of 18,000 pairs of rough lens blanks. Each plant had the capacity for grinding approximately 1,120 pairs of lenses a month and was scheduled to render service for all optical repair units within a definite area. By October 1945 there were 24 base optical repair units and 17 mobile optical repair units.⁸⁰

The logical follow-up was the Navy Spectacle Program embracing issuance of corrective eyeglasses to all Navy, Marine, and Coast Guard personnel within and beyond the continental United States. It resulted actually from the recommendation to SecNav by the Surgeon General, who argued that persons with defective eyesight were in the naval service, that normal vision was essential for most naval assignments, that part of the Navy was already being supplied, but the Surgeon General of the Army provided spectacles and replacements free of charge to Army personnel, and that it was desirable that Army and Navy policy be the same. When authority to do this was granted under Appropriation, Medical Department, in July 1944, the Surgeon General directed the Materiel Division to undertake the project and make recommendations concerning the best method for issuing spectacles. In August the Materiel Division offered a preliminary report

80. Ibid.

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advocating that wholesale optical laboratories be contracted with for the supply of finished glasses, that the requirements for supplying material to prime contractors be equally distributed among all optical manufacturers, that only fifty hospitals and dispensaries be designated to offer the service at first, and that the Materiel Division receive statistics on the distribution of Navy, Marine Corps, and Coast Guard personnel so that an accurate estimate of requirements could be made.⁸¹ The Materiel Division's final plan, submitted 4 October, was approved by the Chief, M&S, on 16 October; the actual issuing began 15 March 1945 with 50 activities, chiefly naval hospitals, rendering the service. Although 9 additional activities were added to the list, it was late in April before the volume of orders began to approach original estimates. The average total number of orders for complete spectacles was 15,000 per month by August 1945.⁸²

A critical need for repair of electro-medical-dental equipment in forward areas had caused the Chief of the Materiel Division, 20 February 1944, to recommend establishment of such units at NM&SD, Pearl Harbor, and NM&SS Number 11.⁸³ By October 1944, a unit was placed in operation at NM&SD, Brooklyn, for the repair of equipment being returned from the roll-up of various activities. Its first report indicated 408 repairs made by August 1945. At that time a

81. Historical Narrative, USNMSD, Brooklyn, p. 40.

82. USN Medical Supply News Letter, Oct. 1945, Issue No. 10-45.

83. See Chapter , p. .

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unit scheduled for NMSD, Oakland, was awaiting men and material.⁸⁴

Advance base units were the result of cooperation among the several bureaus, each of which had cognizance over its own technical material and developed its own initial outfitting lists. Material assembled for two destroyer bases and two seaplane bases designed for Atlantic islands obtained from the British was diverted to the Pacific upon the outbreak of war. It became one of the first advance bases, "Roses". During 1942 "Lions" and "Cubs", having medical facilities of 600 and 200 beds, respectively, were developed. During 1943, initial outfitting lists had been systematized so that medical components were designated as G-Functional Components.⁸⁵

84. Historical Narrative, NMSD, Brooklyn, pp. 46-47.

85. These G-Functional Components and their costs were:

G-2	600 Bed Dispensary.....	\$116,436.88
G-4	200 Bed Dispensary.....	44,810.13
G-5	100 Bed Dispensary.....	30,403.61
G-6	100 Bed Dispensary (Mobile).....	14,883.03
G-7	50 Bed Dispensary.....	17,221.31
G-8	25 Bed Dispensary.....	8,857.97
G-9	10 Bed Dispensary.....	5,658.93
G-10	10 Bed Dispensary (Mobile).....	3,206.94
G11A	First-Aid Sub-Dispensary.....	243.72
G-13	Sub-Dispensary-Dental.....	2,142.82
G-14	Sub-Dispensary-Dental (Mobile).....	1,641.94
G-15	Sub-Dispensary-Dental-Prosthetic Lab.	5,469.98
G-16	Sub-Dispensary-Dental-Prosthetic Lab. (Mobile).....	2,837.38
G-17	Malaria Control Component.....	581.73
G-18	Epidemiology Component.....	1,754.41
G-19	Malaria and Epidemic Control Component (1 G-18 plus 2 G-17's).....	2,917.87
G-20	Optical Repair Component - Base Type.	10,996.80
G-21	Optical Repair Component - Mobile Type	2,636.00
G-22	Rodent Control.....	379.35

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DECLASS Mobile hospitals were planned to alleviate the lack of

hospital facilities in various areas from time to time. Mobile Hospital Number 1 had been sent to Guantanamo Bay, Cuba, in October 1940; Mobile Hospital Number 2 was established at Pearl Harbor twelve days before 7 December 1941. Mobile Hospital Numbers 3 through 8 were procured during 1942; early in 1943 orders were received to expand Numbers 2, 6, and 8 from 500 to 1,000-bed hospitals. Mobile Hospitals Numbers 9 through 12 were expanded to 1,000 beds before they were completed.⁸⁶

In August 1943, the mobile hospitals were redesignated as fleet hospitals with serial numbers starting at 101.⁸⁷ By March 1944 an agreement was made among the Materiel Division, BuMed, Bureau of Supplies and Accounts, and the Bureau of Yards and Docks whereby BuMed would furnish all non-medical material in stock and that the other two bureaus would furnish the remaining material.

86. Historical Narrative, NMSD, Brooklyn, pp. 42-43.

87. The material for a fleet hospital designed to care for 1,000 patients cost \$500,000. Its staff comprised 90 officers including 32 medical, 4 dental, 6 Hospital Corps, 2 Supply Corps, 43 nurses, 2 chaplains, 1 civil engineer and 753 enlisted men. The physical plant required a site of approximately 25 acres. Detailed instructions and tools for erecting the buildings, installation, and operation were included. Equipment adequate for all basic needs--facilities for water purification, softening, storage, and distribution, for toilet, commissary, laundry, automotive transportation, fire fighting, light, power, refrigeration, and garbage disposal--was supplied. There were also complete outfits of medical and surgical supplies--even X-ray, laboratory, and dental items.

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The Materiel Division, BuMed, recommended that mobile hospitals should not be included in advanced base assembly operations, since they were considered units of the Fleet and were entirely under the cognizance of BuMed. A definite procedure was set up whereby mobile hospitals were assembled, processed, and stored in the Medical Stores Sections of the Clearfield, Spokane, and Mechanicsburg Supply Depots. It was estimated that twenty-one days would be required to load out material for a complete mobile hospital.⁸⁸

Defense Aid became still another problem for the NMSD, Brooklyn, and the Materiel Division after the 11 March 1941 passage of the famous House Bill 1776 as Public Law 11, 77th Congress, popularly known as the Lend Lease Act. On 19 March 1941, the Secretary of the Navy wrote to all bureaus and offices of the Navy Department setting up the procedure to be followed. All Defense Aid requisitions were to be cleared through the office of the Chief of Naval Operations, who would invite the cognizant bureaus to comment and then recommend action to the Secretary of the Navy. The sort of comment made by the Bureau of Medicine and Surgery was illustrated by an objection 30 January 1942 to the clearance of certain items requisitioned for Russia until positive assurance was made that the Bureau's 1942-43 requirements would be met. The items listed included needles, forceps, shears, syringes, saws, retractors, tubes,

88. Memorandum, the Chief, Materiel Division, to the Surgeon General, NH(MOB) NB - 121-3 of 22 March 1944.

various rubber articles, certain drugs and biologicals.⁸⁹ When a transfer had been authorized, SecNav would tell the cognizant bureau to proceed; the bureau then consulted with the requisitioning foreign government's designated agency. Defense Aid accounting procedure was revised 4 August 1941 by a joint letter of the Chief, S&I, and the Chief, M&S. It instructed that when a foreign vessel was undergoing repairs, alterations, and conversions, all medical supplies and equipment furnished by medical supply depots, naval hospitals, and Navy yard dispensaries should be reported to the supply officers of the yard and receipted copies should be sent to M&S. 13 September 1941, the Chief, M&S, instructed the medical officer in charge, NMSD, Brooklyn, that items not usually furnished U. S. vessels were to be eliminated in filling requisitions of foreign vessels.⁹⁰ On 2 October 1941, the Chief, M&S, recommended to the Chief, BuShips, that NMSD, Brooklyn, be granted an allotment under Defense Aid Funds for procuring all medical supplies and equipment for Defense Aid requests.⁹¹ On 26 November 1941, the Chief, M&S, reported on internal Defense Aid organization to the Director of Budgets and Reports with the statement that all procurement was handled by NMSD, Brooklyn, where one chief pharmacist was assigned to the work. No civilians were employed in the section.⁹² On 10 December 1941, the Chief, BuShips, recommended

89. Letter, Chief, M&S, to CNO, 30 January 1942, L11-7/EF61.

90. Chief, M&S, to MO in C, NMSD, Brooklyn, A18-1/A16-1 (012), 13 Sept. 1941.

91. Chief, M&S, to Chief, BuShips, L11-7/EF13(113) of 2 Oct. 1941.

92. Chief, M&S, to Director of Budgets and Reports, A18-1/A16-1(012) of 26 Nov. 1941.

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to the Chief, BuMed, that NMSS, Brooklyn, procure and carry a stock of standard items required by the British Navy. BuShips made \$100 available for this purpose.⁹³

Direct BuMed appropriations were first made in December 1942; prior to this time Lend Lease had been accounted under Foreign Economic Administration allocation. The first figures available were those for the fiscal year 1943.⁹⁴

<u>Year</u>	<u>Appropriation</u>	<u>Value of Issues</u>
1943	117,915	93,306
1944	691,860	426,321
1945	867,675	421,122
1946 (to date)	500,940	216,427

ALNAV 244 officially ended Lend Lease on 6 September 1945.⁹⁵

On 5 November 1945 the Acting Chief of the Materiel Division stated it was not considered desirable to request the return of any medical supplies or equipment previously lend-leased to foreign government.⁹⁶

93. Chief, BuShips, to Chief, M&S, L11-7/EF13 (113) of 10 Dec. 1941.

94. Files, Finance Division, Reimbursements and Lend Lease Section, BuMed.

95. ALNAV 244 -- 062212 of 6 Sept. 1945. "It is the policy of the Navy Department to terminate immediately all lend lease financed from Navy appropriations under the Lend Lease Act, Public Law 11, 77th Congress, as amended, to all foreign governments, including all material, services, or information whether for emergency, operational, or any other purposes . . ."

96. Acting Chief, Materiel Division, to Chief, Finance Division, BuMed, A18-1/A16-1, Serial 30279 of 5 Nov. 1945.

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Instruction and Training of Personnel for Medical Supply

Since NMSD, Brooklyn, was the original source of all medical supply, it was logical that instruction and training courses should be instituted there. Indoctrination and instruction have been given to personnel assigned to new Fleet hospitals, hospital ships, transports, combatant ships, medical supply depots, medical supply storehouses, advance base units, optical repair units, and electro-medical repair units.

The course for Fleet hospital personnel covered the major points of platting, erecting, supplying, and operating the plant as well as its organization. The course for personnel about to go aboard ship included a study of supplies and equipment under assembly, discussion of possible changes and a review of the echelons of supply. Medical supply depot and storehouse personnel studied supply, operation, and maintenance. The technique with advanced base personnel was to familiarize them with the commissioning outfit and procedures for resupply.* That the value of these courses has been appreciated was evident in the following comments.⁹⁷

1. "I feel that this period of training here at the NMSD Brooklyn has been definite value to me and I know I shall profit from having had this experience".
2. "I was impressed very favorably with the testing laboratory".

97. Medical Supply News Letter, 1 Sept. 1945, Issue No. 9-45.

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3. "Of course the main educational feature of this course is familiarity with the Supply Catalog".

4. " . . . I was glad to learn the procedures involved in getting educational films, slides, and pamphlets".

The Optical Section at USNMSD, Brooklyn, trained all personnel connected with any of the optical programs. Very few men had sufficient knowledge to carry on such duty without further training and many had no background of training or experience in the field. Many others who had a theoretical background had to have intensive training in the actual work especially in mechanical optics.⁹⁸

A school for electro-medical-dental repairmen was created to begin 16 July 1945. The course was of 4 months' duration.⁹⁹

98. Medical Supply News Letter, 1 Oct. 1945, Issue No. 10-45. The following personnel had been instructed by August 1945:

1. Optical Repair Units
 - a. Enlisted Personnel -- 134
 - b. Officer Personnel -- 44
2. Spectacle Dispensing
 - a. Enlisted Personnel -- 124
 - b. Officer Personnel -- 14
3. Lens Grinding Units
 - a. Enlisted Personnel -- 6
 - b. Officer Personnel -- 2

99. Ibid.

1. Advanced physics
 - Didactic -- 60 hours
 - Practical -- 20 hours
2. Principles of Medical Equipment
 - Didactic -- 30 hours
 - Practical -- 180 hours
3. Installation of Medical Equipment
 - Didactic -- 20 hours
 - Practical -- 100 hours
4. Maintenance and Repair of Medical Equipment
 - Didactic -- 20 hours
 - Practical -- 100 hours

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Men who completed the course were fully qualified to repair and service all types of medical equipment.

Naval Medical Supply Publications

In carrying out their mission of supplying the various activities of the Medical Department, the Naval Medical Supply Depot at Brooklyn and the Materiel Division have issued four publications. These have been the Medical Supply Catalog, the Clinical Laboratory Catalog, the Spare Parts Catalog, the Automatic Medical Stores Replenishment Catalog, and the Medical Supply News Letter.

The introduction to the Supply Table of 1905 stated:

"The supply table of the Medical Department of the Navy is intended as a basis for all requisitions from hospitals and shore stations, although arranged particularly to meet the wants of cruising ships of the Navy."¹⁰⁰

The Supply Table continued through several issues and editings, until in October 1939 when a board met to revise it. The revision was so thorough as to constitute a major change beginning with the name. It was decided that the Supply Catalog, Medical Department, U. S. Navy would be divided into three parts: the Supply Catalog, the Field Supply Catalog, and the Supplemental Supply Catalog. It was scheduled to supercode the Supply Table 1 July 1941.¹⁰¹

100. Supply Table, Medical Department, U. S. Navy 1905, p. 3.

101. NT-4-2/L7-1, Medical Officer in Command, NMSD, Brooklyn, to the Chief, M&S, 24 Oct. 1940.

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The latest reprint and formal revisions, that of July 1943, explained the workings of the Catalog very thoroughly. The Catalog was designed to cover all supplies and equipment regularly furnished a naval medical supply depot and the ordinary requirements of ships, hospitals, and stations. The items listed were selected on the basis of past issues as those best fitted to fill the needs of the average activity, but newer approved agents could not be included because medical science advanced too rapidly for printed lists. A separation for purposes of issuing and accounting was made of items into supplies (expendable) and equipment (non-expendable).

Each item listed was assigned a stock number which simplifies requisitioning as well as the filling of requisitions. Symbols were added to furnish such special information as necessary.¹⁰²

102. These symbols were

- a. Not carried in stock at NMSD, Oakland.
- c. Special requisition shall be submitted when apparatus is required for operation on voltage and current other than that listed in the Supply Catalog.
- d. Item subject to deterioration and exempt from minimum stock requirements.
- e. For issue to hospitals and large dispensaries only.
- f. For issue to ships and small shore stations only.
- g. Not for general issue - for special outfits only.
- h. Must be kept under refrigeration.
- i. For activities that conduct flight examinations.
- j. Specify number and make of microscope.
- k. For naval vessels to which no member of the Medical Department is attached.
- m. For prosthetic dental laboratories only.
- n. Specify make, model, and serial number of item.
- o. Specify make, model, and serial number of unit and whether equipped with adapter.
- q. To be procured by local purchase, if possible. Otherwise may be requisitioned from a naval medical supply depot.
- s. For issue to ships, also to activities for shipping remains to and from continental limits of the United States.
- t. Not issued to ships. Issued for use when a hermetically sealed casket is required for shipment of remains within.

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It also listed the supplies and services which were furnished by the National Naval Medical Center, Bethesda, Maryland.¹⁰³

The Medical Supply Catalog has been modified by monthly changes reflecting new developments which made addition or deletion of items advisable.

The Automatic Stores Replenishment Catalog was created to simplify the procurement of maintenance material by advanced base activities. It listed all essential items calculated to provide replenishment sufficient for 10,000 men for a period of 30 days. Medical stores in appropriate multiples would be forwarded to certain overseas bases and supply storerooms without formal requisition.¹⁰⁴

The Clinical Laboratory Supply Catalog, containing the most common synonyms of reagents and stains, was prepared for issue to major activities ashore and afloat.¹⁰⁵

the continental limits of the U. S. or for local burial.

- u. Not issued to ships. Issued for use when a hermetically sealed casket is not required for shipment of remains within the continental limits of the U.S. or for local burial.

103. Information and Instructions Relating to Medical Department Stores, Ross T McIntire, Surgeon General, U. S. Navy, July 1943.

- a. Antigen for Kahn precipitation test.
- b. Blood typing serum A & B international classification.
- c. Colloidal gold solution.
- d. Cultures, bacterial.
- e. Emulsions, bacterial, for diagnostic purposes.
- f. Mailing cases, bottles and vials for forwarding specimens.
- g. Presumptive Kahn antigen.

104. L8-2/(072-43) Surgeon General to Chief of Naval Operations, 13 May 1944.

105. Medical Supply News Letter, Issue 4-45, 1 Apr. 1945.

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The Electro-Medical and Dental Spare Parts Catalog was issued by NMSD, Brooklyn, to those activities authorized by BUMED to stock, issue, and expend replacement parts, tools, and maintenance supplies that may be required for the repair and maintenance of electro-medical and dental equipment in service under the cognizance of the Medical Department of the U. S. Navy or in the salvage of such equipment. The Catalog was designed to cover all necessary items for the repair and maintenance of such equipment of standard manufacture listed in the Supply Catalog. It had been prepared with item titles listed alphabetically and numerically without regard to item or manufacturer. These were to be used for ordering, but in order to explain the items, they were also listed under the equipment of each manufacturer.¹⁰⁶

The Medical Supply News Letter was born in 1943 as a medium for exchanging points of view, descriptions of local problems, and measures adopted to solve them. It was also a means of helping officers unfamiliar with accounting, procurement, and other procedures. Naturally it was used to reprint pertinent ALNAV's, BUMED directives, the latest information on critical materials, charts showing new organizational set-ups, studies of new projects and schools, and communications from the Surgeon General and the Chief of the Materiel Division. Actually it was a valuable clearing house for exchange of ideas and information between the Materiel Division, the supply depots,

106. Ibid., Issue 9 - 44, 1 Sept. 1944.

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and the supply storehouses.

The story of naval medical supply did not end with the continental network of supply depots and supply storehouses, their organization, their methods, their publications. The real test of medical supply lay in servicing the extra-continental bases and the fighting fleet.¹⁰⁷ An account of this work will be presented in Chapter XV. The best summary of naval medical supply's total accomplishment was presented by the Chief of the Materiel Division, Rear Adm. K. C. Melhorn, (MC), USN, who wrote:

To the men and women in all echelons of the United States Naval Medical Supply Service.

As this letter goes to press, word is received that the surrender of Japan is in sight. At long last the greatest war in history comes to a close.

In these years of effort to maintain adequate medical logistic support over pipe lines 30,000 miles in length for the largest and most powerful Navy of all time your achievement has been a mighty one. Millions in the Allied Nations have reason to be grateful for the service you have rendered -- a service in which for the period 1 Jan 1940 to Jul 1945 a total of \$173,327,171.47 was expended for medical supplies and equipment; a period in which 344,756 requisitions were completed by our Depots and Continental Storehouses.¹⁰⁸

107. Medical supply outside the continental United States is the subject of Chapter XV.

108. Medical Supply News Letter, Issue No. 7-45, 1 July 1945.

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APPENDIX A

Organization Charts

1. Typical Depot and Typical Storehouse
2. Medical Supply System - First Naval District

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APPENDIX B

Butadine - white - mfgd. by E. I. Dupont de, Nemouts Co.

Work done on material coated on 1 side only #41-326-B

C. Material & Workmanship.

Finish - smooth, uniform, soft, free from perforations, uncoated areas, pits and other imperfections. Coated to full width.

D. General Requirements

Kind of fabric - cotton
Width - 46-1/4"
color - egg shell white
weight per sq. yd. - 6.72 ounces

E. Detail Requirements

Coated on 1 side
Kind of fabric - cotton
Thread count - Warp 67.4 Filling 51.4
Thickness - 0.0122"
Breaking strength - Warp 68.8 lbs. Filling 64.0 lbs.
Weight per sq. yd. - 6.63 ounces
Width - 64-1/4"

E-3 Accelerated Aging test (F-3)

Result - no stiffness to coating. Color became somewhat darker.

E-4 Sterilization and steam (F-4)

Result - no apparent loss of substance in surface coating
No appreciable change in color
Sheeting is not tacky and apparently retained its soft uniform surface. Apparently had same degree of softness as originally and no evidence of stiffening.

E-5 Resistance to Phenol (F-5)

Result - destroyed coating in some places.

E-6 Color - egg shell white

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Additional tests - not included in specification

7 days in mineral oil - Result - softened coating
7 days in cottonseed oil - Result - softened coating

Agents dropped on material -

Blood - no change
Sodium Hydroxide N-1 - no change
Dilute Sulphuric Acid - penetrated coating and
destroyed backing
Sodium Hydroxide 10% - no change

Sodium Hydroxide 20% - no change

Dilute Hydrochloric Acid - penetrated coating and
backing
Dilute Nitric Acid - Stained; penetrated coating
and backing
Chloroform - no change
Ether
Alcohol 95%
Petroleum ether
Carbon Tetrachloride
Acetone
Ammonia water 10%
Argyrol 10% - stained slightly

Tincture Merthiolate - pronounced pink stain - penetrated
coating
Tincture Iodine USP - pronounced brown stained -
penetrated coating
Carbon Disulphide - no change
Gentian violet - pronounced purple stain
Alcoholic Sal.
Mercurochrome 2% - Stained coating
Tannic Acid Sal 5% - Stained coating
Methylsalicylate - Destroyed coating

Recommendation: recommended as substitute for rubber shooting.

APPENDIX C

SUMMARY OF RECOMMENDATIONS TO NMSD BROOKLYN

Survey of Administration
by Booz, Fry, Allen and
Hamilton

ORGANIZATION

1. Realign the Depot organization providing for three divisions to handle the work.
2. Set up four sections within the Procurement Division
3. Set up five sections within the Operating Division
4. Set up five sections within the Accounting Division
5. Head up the three divisions with competent executive-type leaders
6. Schedule regular weekly meetings of Depot key personnel

PERSONNEL

7. Adopt a sound personnel program, stressing improved selection, training, organization, performance, compensation, working conditions, and welfare.
8. Select and maintain capable qualified individuals as section heads
9. Retain Navy personnel for a second tour in those positions requiring experience for effectiveness
10. Maintain a record of trainees or substitutes able to step into each Depot position
11. Replace male by female employees in all practical cases

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12. Establish a Depot training program
13. Prepare job instruction manuals
14. Establish and maintain higher work-handling objectives for Depot supervisors to follow
15. Establish an individual output record of performance
16. Grade-up rank of Navy personnel holding key positions
17. Follow the regular line of promotion generally when promoting employees within the Depot

METHODS AND PRACTICES

18. Establish a new simplified procedure for handling supply depot requisitions
19. Reduce the number of copies prepared by activities from five to three
20. Discontinue maintenance of the record showing requisition progress through the Depot
21. Discontinue the practice of having heads of the Planning and Procurement divisions sign requisitions
22. Adopt a block schedule plan of predetermining and controlling completion dates of various requisition-handling operations
23. Use original copies of requisitions for pricing, orderfilling, checking, packing, and shipping stock.
24. Post individual requisitions to tally cards, to be maintained in the Tally Section
25. Eliminate criss-crossing procedure of handling lend-lease requisitions from British ships
26. Enter on tally cards and edit lend-lease requisitions before preparation of transfer invoices
27. Establish purchasing policies and objectives as guides for procurement of material and equipment
28. Install a more efficient system of stock control

29. Install stock record books for stock controllers to use in reordering and following-up deliveries
30. Provide stock controllers with all essential information needed to properly merchandise items.
31. Concentrate all merchandising activity within the Stock Control Section
32. Discontinue the material procurement progress record sheets maintained in the Purchase Section
33. Convert the present Kardex stock control cards to tally cards and maintain them in the Tally Section
34. Record pricing data on tally cards; and cost supply depot requisitions from reference to tally cards
35. Discontinue Medical Stores Ledger Sheets maintained by the Accounting Section
36. Concentrate stock delivery follow-up in the hands of stock controllers
37. Discontinue contract delivery file cards maintained by the Statistical Unit
38. Discontinue storage control cards maintained by the Storage Section.
39. Set-up and maintain close follow-up on material and equipment
40. Obtain adherence by the Navy Purchasing Office to Depot's recommendations as to negotiated contracts.
41. Utilize to the fullest practical extent the practice of making shipments direct from manufacturers to requisitioning activities
42. Revise the Supply Depot Catalog
43. Write receiving records at dock door
44. Reduce the number of receiving record copies created
45. Move stock directly from receiving dock to storage floors
46. Eliminate the typing of inspection reports

47. Prepare and use shipping labels in filling orders
48. Rearrange stock bins containing broken case stock
49. Use a new type order filling truck
50. Replenish stock bins at night
51. Improve housekeeping on orderfilling floors
52. Establish cross reference card system for locating merchandise stored in outside warehouses
53. Take a physical inventory of stock on hand
54. Revise the stock checking procedure and use one instead of two people to handle this work
55. Rearrange checking and packing floor layouts
56. Discontinue sending arrival notices to activities
57. Ship more merchandise direct from outside warehouses to activities
58. Conserve motorized equipment and service trucks at times when they would otherwise be idle
59. Discontinue maintenance of the control board and eliminate preparation of the requisition status report
60. Discontinue the daily detailed typewritten report of requisitions shipped
61. Establish permanent arrangements with the British Admiralty Delegation covering routine markings on cases shipped from the Depot to the British.
62. Install a simplified method of compiling dollar value of shipments by classes of activities and by types of merchandise
63. Determine average unit costs of items through use of information appearing on stock record sheets
64. Accumulate quantities shipped of each item through use of data shown on stock record sheets
65. Develop a daily over-all condensed operating report for control purposes showing the condition of work

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66. Obtain approval from Washington to merge the two defense aid stores accounts
67. Combine purchase requisitions and contracts in one jacket wherever possible
68. Discontinue compilation of typewritten reports listing supply depot requisitions filled
69. Construct racks to hold contracts and invoices while they are being matched
70. Purchase an additional time clock
71. Use stencil method of heading-up time cards
72. Work towards a consolidation of Depot operations in one building, adjacent to rail, water, and truck transportation
73. Rearrange the general office layout
74. Route incoming mail direct to action desks and permit division and section heads to sign mail by direction
75. Make greater use of form letters
76. Install an "auto-call" system

WORKING CONDITIONS

77. Install more drinking fountains in the Depot
78. Procure certain additional office and operating equipment
79. Limit hours of operating workers to 10 in any one day and to 54 in any one week
80. Reduce and restrict overtime in the office to occasions of necessity
81. Tighten the security of the Depot
82. Improve heating conditions in winter months on the first floor of building No. 1
83. Provide moveable stand shelters for outside guards to use in cold inclement weather
84. Install additional lunch room facilities

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85. Add more toilet and washroom facilities
 86. Provide employees with adequate and well arranged working space
 87. Clear papers from all desks and cabinets each night
 88. Train office employees to keep their desks clear during the day of all papers except those which they currently need.
-

April 30, 1943.

MEMORANDUM

Subject: Medical Supply Depot, Brooklyn, Survey of Administration by Booz, Fry, Allen and Hamilton, statement of savings effected or benefits derived.

References: (a) BuMed (Lt. Comdr. Emch) phone request, 4-29-43.
(b) Report, Booz, Fry, Allen and Hamilton, 8-14-42
(c) NMSSD Brooklyn ltr., A3-1, 10-8-42.

1. In compliance with reference, the following statement of the estimated value of savings effected and in those instances where benefits have been derived that cannot be estimated in dollar value, a brief description of the benefits is submitted.

2. To save time the comments will refer to the 88 items, "SUMMARY OF RECOMMENDATIONS", designated by the corresponding numerals.

ORGANIZATION

Paragraphs 1 to 6 - Recommendations have been adopted. Minor modifications were found necessary in improved administration control. Value cannot be estimated in dollar terms.

PERSONNEL

Paragraphs 7 and 8 -- Standard practice prior to survey within limits of Navy policy and Civil Service rules which govern factors beyond control of command. No. value.

Paragraph 9 -- Against Navy policy. No value.

Paragraphs 10 and 11 -- Standard practice prior to survey. No value.

Paragraphs 12, 13, 14, and 15 -- Adopted. Effect somewhat depreciated by turnover in both Naval and civilian personnel. Value cannot be estimated in dollar terms.

Paragraph 16 -- Adopted. Increase in cost estimated to be \$3000 per annum.

Paragraph 17 -- Standard practice prior to survey. No value.

METHODS AND PRACTICES

Paragraphs 18 and 19 -- Under study.

Paragraphs 20 and 21 -- Adopted with modification. Estimated savings, (2 clerks), \$2880 per annum.

Paragraphs 22, 23, and 24 -- Under study.

Paragraph 25 -- Not applicable.

Paragraph 26 -- Former practice modified prior to completion of survey. No value.

Paragraph 27 -- Partially adopted. Addition of stock controllers. Increase cost per annum approximately \$6000.

Paragraph 28 -- Not adopted.

Paragraphs 29 to 39 -- Partially adopted, partially under further study. No savings effected.

Paragraph 40 -- Effected. Value cannot be estimated in dollar value.

Paragraph 41 -- Standard practice prior to survey. No value.

Paragraph 42 -- Under way. Not yet completed.

Paragraph 43, 44, and 46 -- Adopted. Estimated saving, (3 clerks), \$4320 per annum.

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Paragraph 45 -- Partially adopted previous to survey.
No value.

Paragraph 47 -- Partially adopted previous to survey.
No value.

Paragraphs 48 to 51 -- Effected. Value cannot be
estimated in dollar terms.

Paragraphs 52 to 55 -- Adopted. Value cannot
be accurately determined in dollar terms, but estimated at
\$5000 per annum.

Paragraph 56 -- Adopted. Estimated saving \$200 per
annum.

Paragraph 57 -- Being adopted as rapidly as stocks in
our warehouses permit. This procedure was contemplated prior
to survey. No value.

Paragraph 58 -- Adopted. Value cannot accurately be
determined in dollar terms.

Paragraph 59 -- Not adopted.

Paragraph 60 -- Adopted. Estimated saving \$300 per annum.

Paragraph 61 -- Other than Station control.

Paragraph 62 -- Not adopted.

Paragraphs 63 and 64 -- Under study.

Paragraph 65 -- Adopted with modification. Value
cannot be determined in dollar terms.

Paragraph 66 -- Other than Station control.

Paragraph 67 -- Adopted. Estimated saving \$10 per annum.

Paragraph 68 -- Adopted. Estimated saving \$300 per annum.

Paragraph 69 -- Under study.

Paragraph 70 -- Initiated prior to recommendation.
No value.

Paragraph 71 -- Adopted. Estimated saving \$300 per annum.

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Paragraph 72 -- Recommended. Deferred by conservation program.

Paragraphs 73, 74, and 75 -- Adopted. Value cannot be accurately determined, but estimated at \$2000 per annum.

Paragraph 76 -- Not adopted.

WORKING CONDITIONS

Paragraphs 77 and 78 -- Partially adopted. Value cannot be accurately determined, but estimated at \$500 per annum.

Paragraphs 79 and 80 -- Partially adopted. Value cannot be estimated in dollar terms.

Paragraph 81 -- Adopted. Increased cost estimated at \$2400 per annum.

Paragraph 82 -- Not adopted.

Paragraph 83 -- Adopted. Increased cost estimated at \$100.

Paragraphs 84 to 88 -- Partially adopted. Increased cost estimated at \$500.

3. There has been a net savings effected which can be estimated in dollar terms as follows:

Gross savings, estimated	\$15,810
Less increased costs	12,000
Net savings	3,810

4. In addition, there has been improvement in administrative control, and other operative procedure, obtained from the recommendations submitted, which cannot be evaluated in terms of dollars, but which are considered of excellent value. There has been a change from sixteen divisions to three main divisions, and the former divisions have been discarded where not independently essential or incorporated in sections of the three main divisions. That this reorganization has been of value is indicated by study of the performance record. In July, 1942, there was a backlog of unfilled requisitions of approximately 3,000 old requisitions. At the moment there is a backlog of less than 1,000 requisitions, but they are of comparatively recent origin (not over one week in the Depot). The present backlog is less than in July, yet there has been a definite increase in the number of requisitions received and a considerable increase in the physical volume of material handled. The procurement rate has increased from

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approximately one-half million dollars a week to approximately three million a week indicating a greatly increased volume of business. In addition to supplying the increased number of individual naval activities, many storehouses (now a total of 22) have been stocked and are maintained by automatic shipment. Other suggestions made but not yet adopted, due to involvement of other authority than this command, will possibly eventually reflect future benefits.

5. Much of this reorganization might have been accomplished by our own personnel if they had had the time to devote to a detailed study of organization and had been relieved of other duties which they alone could perform.

6. It is felt that the survey and report by the Booz, Fry, Allen and Hamilton Company was of inestimable value in furnishing a working level for effecting a reorganization not otherwise possible.

/s/ K. C. MELHORN

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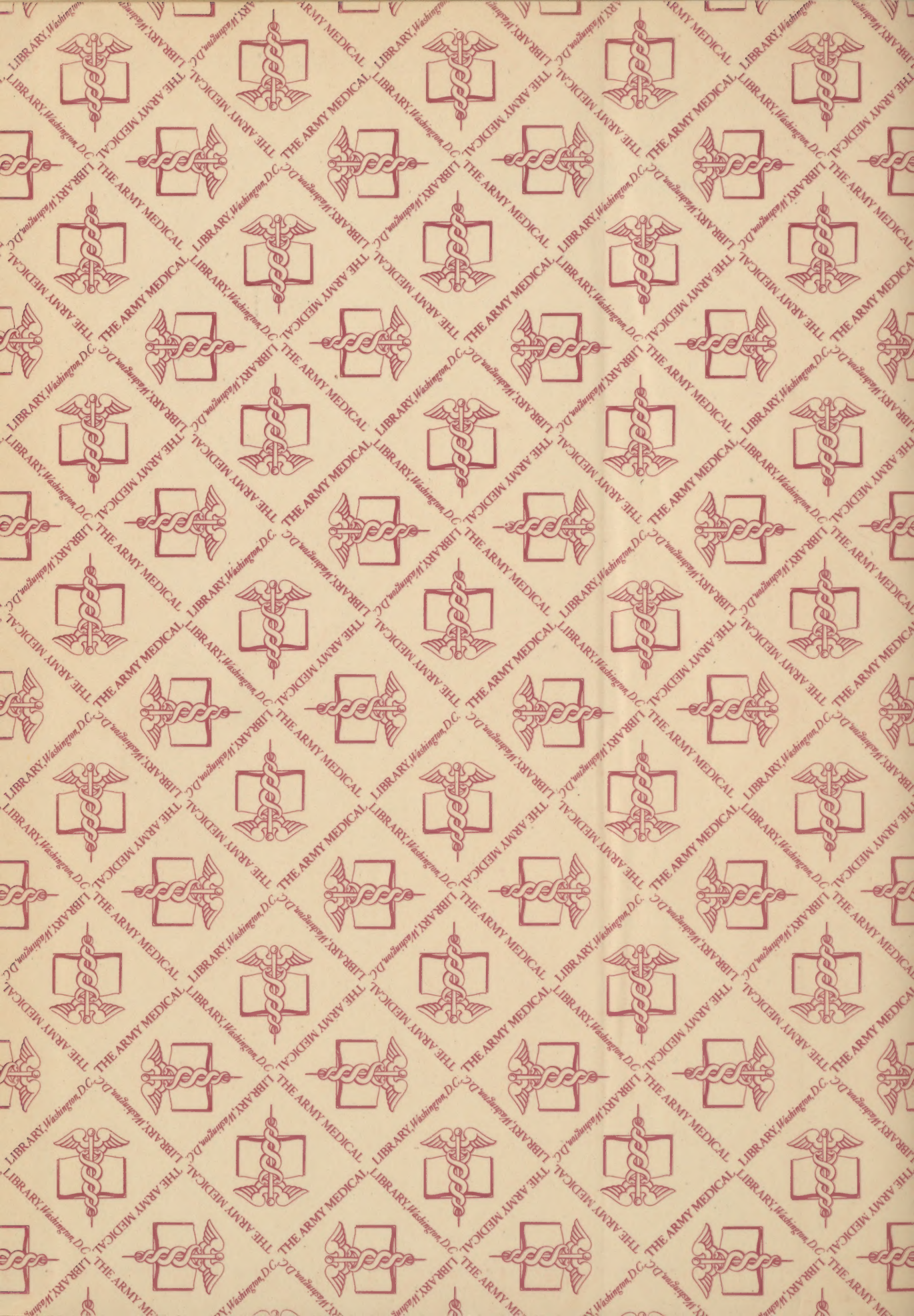
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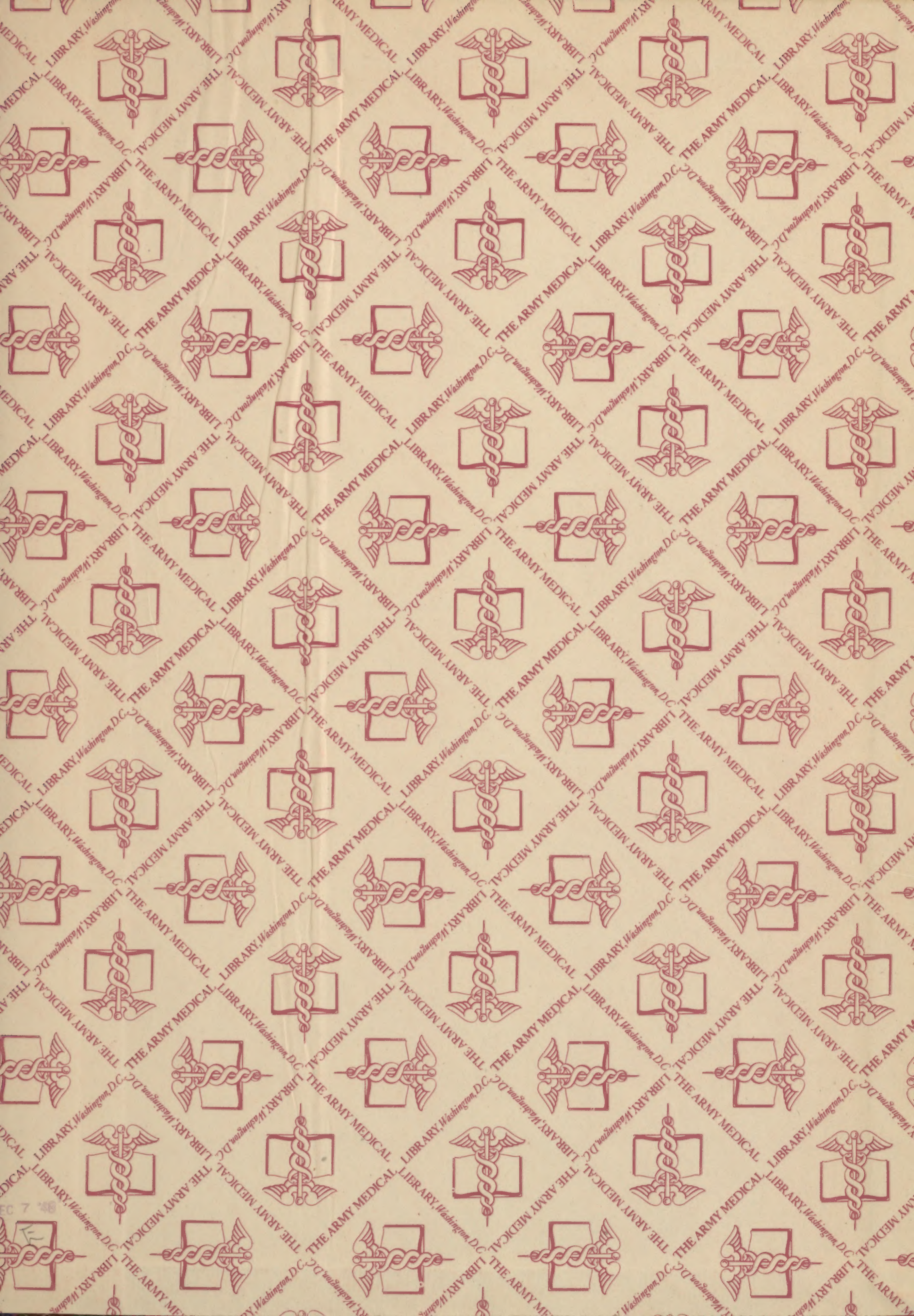
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